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THE
Alienist and Neurologist

A QUARTERLY JOURNAL

—OF—

SCIENTIFIC, CLINICAL AND FORENSIC
Psychiatry and Neurology.

*Intended especially to subserve the wants of the
General Practitioner of Medicine.*

“Quantam ego quidem video motus morborum fere omnes a motibus in systemate nervorum
ita pendent, ut morbi fere omnes quodammodo Nervosi dici queant.”—*Cullen's Nosology: Book
II., p. 181—Edinburgh Ed. 1780.*

VOLUME VII.

—EDITED BY—

C. H. HUGHES, M. D.,

And an associate corps of collaborators.

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INDEX TO VOLUME VII.

ORIGINAL CONTRIBUTIONS.

	Page.
Alopecia.....	254
Armstrong case.....	79
Arterial muscles, etc.	349
Cocaine, on the use of, in the opium habit.....	51
Criminal responsibility.....	376
Dermal pigment changes in the insane	474
Digestive system and the brain, relations existing between.....	73
Dipsomania, clinical lectures on.....	58
English asylums, observations in.....	237
Hypnotic sleep.....	389
Hysteria in a male, case of.....	362
Inebriety, certain phenomena in.....	566
Insane, individualized treatment of....	435
Insane, school training of.....	581
Insanity, medical jurisprudence of.....	547
Insanity resulting in homicide, case of	99
Management of melancholia.....	217
Management of the insane.....	286

	Page.
Mechanisms of control (I and II).....	17
Mechanisms of control (III, IV and V)	171
Meconeuropathia.....	461
Melancholia, report of a case of.....	209
Mental diseases, report of the progress of classification of.....	414
Muscular atrophy.....	430
Nerve paralysis.....	268
Opium habit, report of a case of	247
Paretic dementia.....	107
Pathological records from McLean Asylum for the Insane.....	478
Physiological psychology in Italy.....	1
Progressive locomotor ataxia, case of	206
Pseudo-metaphysicists	592
Raynaud's disease and insanity.....	618
Relation of phthisis to insanity.....	256
States of delirium in inebriety.....	44
Vitiligo, the nervous system in.....	298

SELECTIONS.

	Page.		Page.
NEUROLOGY—		Nitrate of sodium in gout epilepsy.....	120
Knee joint, contracture of.....	515	Oöphorectory and insanity.....	507
Tabes, with preserved knee phenomenon.....	516	Pilocarpin in tetanus rheumaticus.....	515
Ueber zwei Fælle von tabes dorsalis mit erhaltenem knie phænomenen. Autopsie.....	515	Regeneration of nerves.....	119
NEUROPATHOLOGY.—		Spinal cord, direct medication of.....	121
A new group of symptoms.....	694	Theine, therapeutic action of.....	510
Relation of the tendon phenomenon to the reaction of degeneration.....	695	Urethan, a new hypnotic.....	118
NEUROPHYSIOLOGY—		Urethan as an hypnotic.....	512
An alteration of the brain, characterized by separation of the gray and white matter of the convolutions, note on.....	686	Urethan in mental and nervous diseases.....	696
Central connection of the auditory nerve.....	693	Urethan subcutaneously applied.....	514
Cerebral localization, Gudden on.....	692	Urethan, uses of.....	512
Knee phenomenon, cause of the.....	691	Use of arsenic in chorea.....	116
Motor areas in the cortex, Exner and Vareth on.....	689	PHYSIOLOGY—	
Motor centers, Hitzig on the.....	688	Vulpian on the Trigemini.....	518
Recurrent laryngeal nerve, function of.....	517	PSYCHIATRY.—	
The ano-vesical centers.....	694	Affinity of the insantly disposed for each other.....	507
Thermal brain centers.....	693	Aortic regurgitation, mental symptoms of.....	320
Thermogenic centers, Girard on the... ..	691	Auditory hallucinations in a deaf mute.....	318
Vicarious nerve function.....	125	Cardiac diseases among the insane.....	319
NEUROTHERAPY—		Cocainomania.....	686
Anæsthesia of the skin by cocaine.....	513	Cold bandaging of the leg in insomnia.....	321
Antipyrin in phthisical insanity.....	514	Chloral, chronic abuse of.....	506
Barometer as a guide to health.....	117	Exorcism in insanity.....	507
Belladonna and iodide of potassium... ..	121	Genius or madness?.....	123
Cerebral surgery.....	120	Hysterical paralysis.....	122
Dipsomania.....	514	Hughlings Jackson's view of the nature of insanity.....	685
Helenin in chorea.....	697	Insanity following gunshot injury to the head.....	317
Hyocyamine in chorea.....	697	Mental alienation of Blue-Beard.....	683
Hypnon, the new hypnotic.....	116	Mental diseases, Dr. Pliny Earle on classification of.....	503
Influence of kairin, thallin, hydrochinon, resorcin and antipyrin on the heart and blood-vessels.....	312	Moral insanity.....	505
Is alcohol a food?.....	119	Morphiomania, contribution to the study of.....	316
Leucocythæmia, remarkable lesion of the nerve-centers in.....	514	Nervous diseases, the use of alcohol in.....	506
		Nervous troubles in slow mercurial intoxication.....	505
		Onomatomania.....	124
		Paranoia.....	314
		Surgery among the insane.....	504

SELECTIONS.

	Page.		Page.
SEMIOLOGY.—		SEMIOLOGY—Continued.	
Mental disturbances consecutive to cataract operations.....	698	Reflex epilepsy caused by larvæ of insects.....	697

PROCEEDINGS.

	Page.		Page.
New England Psychological Society..	110	Fortieth Annual Meeting of the Association of Superintendents of American Institutions for the Insane.....	620
New England Psychological Society..	305		
New England Psychological Society..	497		

EDITORIAL.

	Page.		Page.
American Medical Association	330	Defective State laws respecting medical testimony on the subject of insanity, in the courts.....	705
American Medical Association and the next International Congress.....	147	Delegates to the American Medical Association	329
American medical editors.....	330	Dr. Benjamin Rush's early humanity toward the insane	711
A new anatomy act.....	709	Earl of Shaftesbury.....	147
Another decision important to physicians, concerning pay for expert testimony	712	General officers of the International Medical Congress.....	711
Apespsia nervosa.....	144	Greeting to the American Medical, State Medical and Medical Press Associations	331
A physician's personal experience with cocaine	703	Gunshot wounds of the brain.....	144
A story of family taint told in a criminal court.....	707	"Index catalogue of the Surgeon-General's office of the United States army"	702
Autopsy upon the late King of Bavaria	532	Inhumanity to the insane	520
Beaumont Hospital Medical College.....	333	Insanity of the Bavarian king.....	529
Classification of mental diseases, and the Antwerp international committee.....	533	Interest in medical science by the religious and secular papers.....	535
Cocaine	145	Laparotomy epidemic.....	325
Corning's method of local anæsthesia	712	Louis Riel, case of.....	134
Craniotomy	140	Luciani e seppilli.....	146
Dead physician to the Bavarian king.....	524	Malarial epileptoid nature of narcolepsia	322
Death of Dr. Abram Marvin Shew	330	Migraine, Drysdale's theory of.....	143

EDITORIAL.

	Page.		Page.
New books.....	148	Substitution by druggists.....	713
Neurological Review, the.....	329	Teaching the nature of alcohol.....	708
Neuropathic relations and neurother- apy of cholera.....	142	The chlorodyne habit.....	713
Physiology of disseminated sclerosis..	137	The doctor of the future.....	702
Prof. Golgi's method of black coloring of the central nervous organs.....	126	The fame of the ALIENIST AND NEU- ROLOGIST.....	713
Role of electricity in tabes.....	534	The great increase of insanity.....	699
State Medical Association.....	330	The legal suppression of quackery.....	710
Statistics, a common international basis for.....	143	To the delegates to the Missouri State Medical Association.....	330
Sequency of railroad accidents.....	524	Trial of Mrs. Dudley.....	139
Subscription agencies.....	333	Urethan, paraldehyde and chloral.....	527
		Who owns the prescription?.....	145

HOSPITAL NOTES.

	Page.		Page.
A good example.....	540	Dr. J. Crichton Brown.....	337
Appointment of Dr. Goldsmith.....	150	Dr. T. M. Franklin.....	337
Asylum Medical Association.....	150	Errata.....	540
Dr. A. E. MacDonald.....	338	Essex County, New Jersey, Asylum...	338
Dr. B. D. Eastman.....	337	John Woodbury Sawyer, M. D.....	150
Dr. E. N. Brush.....	337	Public prophylaxis of insanity.....	336
Dr. E. P. Stimson.....	540	Resignation of Dr. D. D. Richardson...	337
Dr. Harvey Black.....	336	Retirement of Dr. Earle.....	149

REVIEWS.

	Page.		Page.
Asylum for the insane.....	169	Handbook on the diseases of the ner- vous system.....	168
Care of the insane, lectures on.....	346	Homœopathy.....	543
Cathell's "Physician Himself".....	169	Inebriism.....	714
Cheyne-Stokes respiration....	342	Il Manicomio.....	340
Daniel's Medical Journal.....	170	La Emiplegia.....	157
Differential diagnosis, manual of.....	542	Lindsay & Blakiston's Physician's Visiting List for 1887.....	714
Du délire chez les dégénérés.....	714	Manual for the instruction of attend- ants and nurses in hospitals for the insane.....	347
Eighth edition of Hammond's treatise on the diseases of the nervous sys- tem.....	545		
General paralysis of the insane...	714		

REVIEWS.

	Page.		Page.
Medical News' visiting list.....	170	Poor-house administration.....	164
Medical annual and practitioners' index.....	545	"Progress".....	544
Medicine of the future.....	545	Psychiatria.....	163
Moral insanity, a case of.....	167	Psychiatry.....	154
Nature of mind and human automatism.....	166	Recherches cliniques et therapeutiques sur l'epilepsie, l'hysterie et l'idiotie.....	544
Neurological Review.....	542	Relation of the State and the medical profession.....	546
New York Medical Monthly.....	543	Sensational insane literature.....	339
New York Medical Monthly.....	545	"The Review".....	544
On the admission of idiotic and imbecile children into lunatic asylums.....	546	Traite elementaire d'anatomie medicale du system nerveaux.....	541
Paralysis from peripheral lesions.....	546		

OBITUARIES.

	Page.		Page.
Dr. C. G. Catlett.....	536	Resolutions on death of J. W. Sawyer..	536
Austin Flint, M. D., LL. D.....	334	Dr. T. R. H. Smith.....	151
Dr. John W. Sawyer.....	537	Dr. Joshua Husband Worthington.....	538

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ORIGINAL CONTRIBUTIONS.

Physiological Psychology in Italy.*

By GABRIELE BUCCOLA, M. D., Italy.

AFTER the preceding excursion in this field of general psychology, it may not be inopportune to fix our attention on some particular department of psychical facts. It appears to us that the most complete and scientific work which has been published in Italy of late years is that of Herzen on "Consciousness." It is a work that shows in our physiologist a great aptitude for analysis and observation, a marvelous clearness in reasoning, rendering manifest, to not a few of the syllogisers of the absolute who cry out anathema, how largely fruitful are the results of the positive psychology. Herzen purposes to discourse of general or impersonal consciousness, of the form of consciousness, that is to say, of the simple fact of feeling anything whatever. This impersonal consciousness is very distinct from individual consciousness, or the sentiment of one's own personal unity, and still more from the notion of personality.

Any one who has followed the psychological movement will certainly know that the accord among physiologists vanishes when they would establish what part pertains to consciousness in psychical activity and in the several acts that accompany it. According to some, consciousness is

*Translated from the Italian of *La Rivista Sperimentale di Freniatria*, Anno VI., 1880, by JOSEPH WORKMAN, M. D., Toronto, Canada.

a constant, necessary and essential attribute of every nervous central mutation, or of every psychic act. By others it is regarded as a contingent attribute, a frequent and concomitant phenomenon, but altogether secondary. Maudsley, for example, denies any consciousness whatever to the medulla spinalis (spinal marrow or cord), and according to him the co-ordinate reflex acts should be referred to an unknowing (*inconsapevole*) mechanism, charged with the transmission of the excitement through preformed nervous paths, connate or acquired. He denies almost all consciousness (*consapevolezza*) to the *sensori-motor-centres*; placed above the medulla oblongata and below the corpus callosum, and he holds that the greater complexity of the acts, through a mechanism analagous to the preceding, is due to the greater complexity of the impressions caused by the operations of the special senses. Speaking afterwards of consciousness in the cortical centres of the convolutions of the brain, which are the seats of intelligence and volition, Maudsley, being unable to throw any doubt on the existence of consciousness, as, at the least, a usual and frequent accompaniment of the activity of these centres, is intent on making known the possible modes of their unconsciousness (know-nothing) working. When, says he, the whole energy of an idea is all at once discharged outwards, producing idea-motor-action, our consciousness (know-somethingism) is null or almost so. In order that consciousness of an idea may happen, it is necessary not only that the idea should reach a certain intensity, but also that it may not be entirely reflected outwards on the apparatus of motion. The central formation is conscient only when there is present "a certain degree of persistency and intensity in the current which runs through the circuit of ideation." With Lewes all is just the contrary; whilst Maudsley, on the one side, studies to prove that consciousness is wanting, not only in every nervous act of inferior order, but sometimes even in intelligent function itself, and that consciousness, if it be a concomitant factor of psychical activity, is not,

therefore, the essential factor. Lewes on the other side, tries to demonstrate the presence of consciousness in every nervous act, even down to the most direct automatic spinal reflex. This distinguished psychologist admits that sensibility is a histological and not a morphological property, that is, of the tissue and never of its disposition (arrangement); sensibility is inherent in the nervous ganglion just as contractility is in the muscular-fibres. The sensorium, or seat of sensation and consciousness, is not limited to the cerebral mass, but extends to all the nervous centres; and the opinion of many psychologists, who see consciousness in the brain alone, and consider the acts accomplished by the spinal cord as phenomena of a different nature, as reflex phenomena due to a sort of mechanical accommodation, is devoid of all experimental basis. Between the cerebral action and that of the medulla, there is found only difference of degree; and combating the common theory of the reflexes, under the double aspect of deduction and induction, of reasoning and experience, he concludes that if the brain is the principal organ of psychical life, participation by the ganglia in general consciousness is not therefore excluded.

How is it that such a divergence of views between Lewes and Maudsley has taken place? How is it that these two, opposing with equal vigor the doctrine of dualism, have arrived at results so opposite? According to Herzen it proceeds from each of them having exaggerated the proper mode of viewing the subject, and it appears to him that truth may stand in the synthesis of the two opinions above exhibited, a synthesis to which he tries to give a clear and concise expression by delineating the physical basis of consciousness.

It is a fact, that the nervous texture is not withdrawn from the general biological law; that in life the period of disorganization is the period of activity, which is followed immediately by the period of reparation. The nervous elements are disintegrated in functioning, and they are re-integrated immediately after having functioned,

so that every nervous act manifests a phase disintegrative and a phase integrative. This being premised, Herzen proposes to demonstrate: that consciousness never accompanies integration of the nervous elements; that consciousness accompanies only disintegration of these elements; that the intensity of consciousness is simultaneously in direct proportion to the intensity of the disintegration, and in inverse proportion to the facility and the rapidity with which the internal work of any nervous element is thrown over on another nervous or motor element, peripheral or central. The first question is therefore the following:

To which of the two phases, the disintegrative or the integrative, is consciousness allied?

There is no possible experiment for replying to this preliminary demand; but we may be safely guided by observation alone. Integration and re-integration of the nervous centres are altogether unknowable. No person has consciousness of the embryonal development of his own brain, nor of the successive evolution of his cerebral organs, which is accomplished in the most absolute unconsciousness, just as the nutrition of the muscles and bones. The central elements once developed, being struck by incident impressions, enter into function; activity disintegrates the central organ, and fatigues it. Tiredness is the measure and expression of the succeeding functional decomposition, and the sense of comfort that results from sleep, during which the central organ is re-integrated, is the measure and expression of the reparation accomplished. Now, we are conscient when awake, inconscient when in profound sleep; here is the first indication of the bond that unites consciousness to disorganization. This intermittence of knowable activity subsists in every psychical act taken isolately. Thus, consciousness is colligated with the disintegrative phase of central nervous activity.

But here comes another query: Is every disintegration conscient?

Evidently not, for the automatic acts are inconscient, though they are accompanied by disintegrative processes. Observation, however, shows, that always, and all through, the acts that most fatigue, that give the largest quantity of the products of decomposition, are the less automatic and the more conscient; and that, on the contrary, the acts that fatigue less, that are accomplished with the least functional decomposition, are the less conscient and more automatic. It, therefore, seems that disintegration does not produce consciousness, unless when it reaches a certain intensity.

Experiment is here possible, guided and enlightened by the indispensable control of introspective examination. It would suffice to relate the experiments of Schiff, which have shed a flood of light on the relations of central thermogenesis to psychical activity. From these we come to understand that, the development of heat is so much the greater, the more the impression received by an animal is adapted to strike its attention, that is, to awaken a vivid consciousness of itself; on the contrary, this thermal development is least, if the impression passes unheeded or almost so, and it awakens consciousness very little or not at all. From the experiments, therefore, it results that the central acts which are accompanied by the more vivid consciousness, are those which induce a more extensive decomposition and a greater development of heat, and hence we are in a position to deduce the first part of the formula, that "the intensity of consciousness is in direct relation to the intensity of functional disintegration."

Now, what characteristic sign befits the central acts accompanied by the less vivid consciousness, or the totally inconscient? A limited decomposition, a heat production reduced to the minimum, and, in addition, a transmission relatively very rapid. In truth, every central nervous act exacts a certain time for its accomplishment; repetition, practice and habit diminish the physiological time, reducing it much from what it was at first. The personal equation

is at its maximum when the act to be accomplished is new; it diminishes in proportion as the act becomes habitual and automatic, and it reaches the minimum when we confront pure automatism and unconsciousness.

In this guise the automatic actions are characterized by the most trivial disintegrative and thermic processes, and above all by the rapidity of the mode in which they are brought into effect. Hence the other part of the formula is deduced, that "the intensity of consciousness is in inverse relation to the rapidity of the central transmission."

Such is the embryology of the physical law of consciousness, which springs from the study of psychological facts, without any danger of aprioristic and metaphysical adulteration. This general law comprehends, besides the activity of the cortical centres of the brain, also that of the sensori-motor and spinal centres, and the distinguished physiologist proves this by many demonstrations, from which the following corollaries would result:

1st. In the medulla spinalis: There is elementary consciousness, impersonal and unintelligent; greatest in the inferior animals, least in the superior. In the latter, in the physiological (healthy) state, appeal is not made to spinal consciousness, because all the reactions of the medulla proceed automatically, and the stimuli, not finding a mechanism prompt to reflect them, are sent to the encephalic centres; only in cases in which, after decapitation, opposite complications are introduced (which, by rendering necessary the formation of new nervous paths, produce an extended and profound disintegration), does spinal consciousness attain a certain degree of intensity, afterwards to decrease when new communications have been associated and smoothed down, and when the relative reactions become habitual and automatic.

2d. In the sensori-motor centres: Individual consciousness, with the germ of perception, that is, the rudiment of intellect; intensity and intelligent and volitive character, subjected to conditions identical with those which regu-

late the intensity of consciousness in the medulla spinalis; but with this difference, that, because of the indeterminate variety of the external impressions and internal sensations, of which these centres are the seat, almost their every reaction will necessitate the introduction of a new element, a modification, be it ever so trivial, of the movements to be made, and that in consequence their activity can never reduce them to an automatism so complete as that of the medulla, and will, therefore, contribute almost always, even in the superior animals and in man, its quota of consciousness to the general motions of the individual.

3d. In the cortical centres of the hemispheres: Consciousness intelligent, volitive, with clear notions of the individual's relations to external objects, and of these to one another; from which results the intentionality of the motor reactions. Conduct is regulated by past and present circumstances, and by the future, which the individual from the advantage of acquired experience foresees. Contrary to the two prior forms of consciousness, this increases *pari passu* with the zoological rank of the animal, and attains its maximum in man.

The law of Herzen, being applied to any psychical phenomenon whatever, voluntary or involuntary, intelligent or automatic, knowable or not, confirms the ideas of Spencer, and founds, in one vast synthesis, opinions in appearance so diverse as those of Lewes and Maudsley. Lewes, preoccupied supremely with the receptive side of psychical activity and the intensely conscious labor that accompanies every new acquisition, that is, with the difficulty of central transmission and the persistent disintegration resulting from it, sees everywhere consciousness. Maudsley, on the hand, preoccupied specially with the restitutive side of psychical activity, the automatic work of the centres already organized, that is, with the facility of central transmission and the re-integrative phase of the nervous elements, discovers everywhere unconsciousness.

If the law of Herzen is true, it ought to explain, not

only the normal formation of consciousness in physiological (healthy) conditions, but also the production of consciousness in the domain of pathology; for a law of the sound functions is also a law for the diseased functions. We may, therefore, be permitted to add some facts derived from observation of what happens in diseases of the mind, which, in our opinion, confirm the doctrine of Herzen.

In states of violent maniacal exaltation, true hyperfrenzy, the perceptions, the representative images of things, ideas rush through with extreme rapidity, pressing one another with dizzying calamity. The current which runs through the circuit of ideation, in the chaotic delirium of mania, is most rapid; it does not tarry in the cerebral centres, it encounters no resistance and it discharges itself, as Maudsley would say, instantly outwards, giving place to a vivid ideo-motor reaction, which is manifested in the chaos of acts and words. Disintegration of the nervous centres assuredly happens, but it is a diffuse disintegration, of very extensive surface, as is proved by generalized delirium, and its intensity is slight, when it is compared with the facility and tumultuous rapidity of the cellular vibrations which, so to speak, percuss the motor elements. In these conditions consciousness is found inversely proportionate to the active quantity of external diffusion, or better, consciousness must be wanting, and the fact proves it. For when the patient enters a period of intermission, or of convalescence, he remembers not, or only as a dream, his preceding state. Memory, which we may call the immediate consciousness of a fact, has not been formed, or, what amounts to the same thing, the psychical cellular elements have not been disintegrated to such an extent, and so intensely, as to produce consciousness, and hence that degree of memory which accompanies it.

On the contrary, in the state of lypemania, and sometimes in stupor, in which the life of relation seems to be suspended, or as it were annulled, whilst the work of

delirious ideation continues, without in the least, or but very little, being carried over into exterior acts, the general movements of the system, or general consciousness, remain, because the impressions and ideas may profoundly disintegrate the nervous tissue, failing to project themselves outwards into the external motor sphere, and running with less celerity; hence they have time to organize and to impress the nervous cells. The patient in fact remembers, in its least particulars, his anterior psychical life, and is often able to analyze quite minutely, even after years, all the ideas and delirious impressions which succeeded one another in his mind; his remembrance of them to-day is no other than the awaking of the consciousness of them, which certainly would not be produced if the disintegrative work of the nervous elements had not been intense, and the central transmission relatively tardy.

Two psychological processes, according to Wundt, should be considered as characteristic signs of consciousness; the formation of representative images by psychical synthesis of the sensations, which range themselves according to certain general groups, and the going and coming of the representative images reproduced.

These two conditions, because of the disturbed, rapid ideo-motor working, are wanting in chaotic mania, and they are wanting too, from other causes that always exclude profound and intense disintegration of the nervous cortical elements and slowness of central transmission, in all those states which Krafft-Ebing has designated by the name of very acute psychopathic states (drunkenness, delirium from poisoning, acute delirium, the grand mal of epileptics); whilst, on the contrary, they persist in variable degrees of clearness in simple lypemania and in that accompanied by stupor.

In addition to consciousness, of which Herzen, as we have seen, has, with a master hand, designed the physical basis, a most important chapter of psychology is that on instinct. On the doctrine of instincts, now at last entered

into a new phase, several physiologists and naturalists among us have treated. No one better than Herbert Spencer has understood how to unveil the mechanism and genesis of instinct; which the older theories figured as an innate primitive and unvarying tendency. Instinct is nothing but that composite, reflex action, which signals the dawn of psychical life, and is derived from that simple reflex action in which the process is almost wholly mechanical, and the conscient manifestation is obscure. We might consider reflex, according to Wundt, in a certain manner as the ideal point of departure of instinct. Instinct, in short, is that complex of phenomena in which mechanical motion is converted into psychic motion, unconsciousness into consciousness. In running along the scale of zoology, we may not only see the line of progress from the simple to the complex, that is from the purely reflex act to the instinctive, but we may witness the insensible transformation of instinct into a higher order of psychical activity, and this when, as Spencer observes, the instinct becomes too complex to be contained within the limits of the most perfect automatism. Even in defect of direct proofs, a luminous example is furnished to us by the common, universal fact, that the rational acts, which permit us to discover their intellectual origin, become automatic and instinctive after long repetition; from this point of view we might say, that memory is a nascent instinct, and instinct is an already organized memory; that is, memory embraces that class of physical facts which are on the way to be resolved into organic facts, and hardly is the conversion completed when, behold, automatism and instinct step on to the stage. The transformation of intelligent acts into instincts, according to Maudsley, throws into relief the efficacy of the same laws that preside over the natural genesis of complex instincts derived through the law of variations and heredity from simple instincts. The sole difference consists in this, that variation, instead of being produced by the operation of an unknown cause, is due to the influence

of man, and it survives through the operation of artificial, rather than of natural selection.

It is possible, according to positive inductions, to demonstrate the variability and plasticity of instinct as well in man as in those animals in which the instincts have been rendered more manifest in the domestic state. The causes of variability are numerous, and it is enough to name difference of external excitations, the diversity of sentient centres and of the persistency of images, the use and the non-use of organs, habits; the conditions of life, sexual selection, nutrition and hereditary transmission. All of these are conditions that tend to modify the organisms, the nervous centres and the instinctive manifestations, whose relations are intimately bound together. As regards the plasticity of instinct, objective analysis is in a position to affirm that instinct is so much the more plastic the nearer it approaches to the summit of psychological life, and it is so much the less so, the farther it is separated from that point, by clothing itself with the automatic characters of physical life. If the modern doctrines have pronounced erroneous the dogma of Cuvier, that instinct is in inverse ratio to intellect (for the clearest proofs are furnished that insects which possess the most marvelous instincts are the most intelligent; that in the inferior vertebrates the complex instincts are wanting, and that among the *mammifera*, that animal, classic for its instincts, the beaver, is furnished with high intelligence), these doctrines have also recognized as erroneous that rigid, absolute and invariable character which was believed to be the special sign of instinctive expressions. A chapter in the "*Origin of Species*," by Darwin, has upset this conception, which was drawn from metaphysical apriorism, more than from facts. There are instincts which are rendered more perfect if found profitable to the individual and the species, as also there are instincts created, if necessary, or which disappear on becoming useless or injurious to the individual and the species.

The perfectionment of instincts takes place, not only

in the domestic state, but also in the state of nature, though it is difficult to obtain the proofs. In the first place, because as Canestrini observes, the perfectionment, as well of instinct as of the organs advances in long successions of time, with very slow progress, so that the effect can be appreciable only after infinite generations; and when instinct shall have assumed a more complex form, the characters of the species will then be shown to have so far diverged from the primitive mother species, as to lead to the belief that the latter is diverse, and that the instinct has remained immovable. In the second place, physical structure leaves traces of itself in the geological strata, but instinct cannot be petrified in the subterranean zones. Vain is the hope to disinter fossil instincts that should serve to indicate the successive stages through which their history has passed. Science, adds the illustrious naturalist, by penetrating into the bowels of the earth, has been able to discover some possible forms of transition, as the pterodactyl and the archeopterix, that have sculptured their nature in the death pages of the great life-book; but the instinct of the slavery of ants, or of the migration of birds, could not be fossilized. It is, at the most, in some way to be hoped that some products of the instincts may be disinterred, as, for example, the nests of birds and the fossil cells of bees (but certainly not with that facility with which we succeed in searching in caverns, tunnels and sea bottoms), we may bring to light some primitive rudiments of prehistoric human industry and activity. Had the life of man lasted for only a very short period, he would have been unable to comprehend the most simple natural phenomena. That the butterfly would come forth from the caterpillar, and the fruit be but a transformation of the leaf, would have been to him a mystery. Now, in almost identical proportions stands the fleeting periods of our life, when compared to the infinity of geological time, and so the relations and mutations of organic species evade our detection. It is true that in embryonic development, the

history of the past is delineated and condensed in grand vestiges, but still it is true that ontogenesis is a filogenesis very incomplete, and much altered through the efforts of natural selection. Being unable to follow, in a direct manner, the perfectionments of the instincts in the antecedents of present species, we must, as Darwin says, search for them in the collateral lines of descendance, and we should hope to find in living organisms, the instincts in different degrees of perfection, for progression in the several species does not take place in an equal manner, nor with equal energy.

The relations of nature, development, and laws, between instinct and intelligence in the whole zoological series, enables us to see, at the very outset, that there is no line of division, which on the one part circumscribes the instinctive acts, or on the other the intellectual.

Instinct is less variable than intelligence, and in some animals it represents the primitive form of the latter, constituting, as it were, the link of conjunction between physical life and psychical. In the lowest species its automatic character by far predominates, whilst variability is accentuated in the superior animals. Who is able to distinguish in an act the part that pertains to instinct, and that which pertains to intelligence? When the cuckoo, observes Canestrini, lays her egg in the nest of another bird, this action is neither wholly instructive nor wholly intellectual. Instinct is, so to say, the scheme of the action, the rest is mental work. Or, desiring to use the expression of Lewes, instinct is an organized experience, a non-discursive intelligence, and in both the nervous and the logical processes are the same. Whilst Spencer thinks that instinct is accompanied by a rudimental consciousness, it is Sergi's opinion that the instinctive act possesses the entire psychological value, and that there are cases in which it acquires the greatest clearness, especially when the stimulus is a true sensation; for in the satisfaction of stimuli, which prompts to instinctive actions, there is pleasure, and in the opposite case suffering and pain, of

which the animal has full knowledge, but may be in unconsciousness as to the exterior conditions that have aroused it.

Instinct, *per se*, is not transmitted; but its physical substratum is transmitted. In the compartments of the nervous tissue which has been inherited from past generations, there exists a disposition to instinctive movements, which, in order to be brought into activity, must be awakened by the stimuli of the senses. It happens to the instinctive acts as to the perceptions of sense. Every being carries in itself, as if sketched out after the labor of a thousand centuries, the efficient cause of sensible excitement. (Wundt).

The corollary, therefore, of the studies and inquiries on instinct is summarized in few words. Instinct is an acquired fact derived from the experience of the species, and through the efficacy of adaptation to exterior conditions and of heredity, it has become an organic condition, a habitude, which in the physical world represents the inertia of living beings. It is the product of an evolution which originates in the more homogeneous instinctive tendencies of the lowest animals, and the more these tendencies retain of simplicity, the nearer they come to reflex motion, that is, to that motion which arises almost mechanically, after external stimuli, in an organism capable of sensation.

We might now speak of some other psycho-physiological problems not less important, and enter into a field more difficult of cultivation, as the perception of space and time, attention, intelligence and so on; but we deem it opportune to stop with the few words now given. It is, however, very pleasant to us to say that Sergi, in his recent volume, has, with great learning and a vast knowledge of biological phenomena, given a splendid example of the manner in which positive psychology should be treated in the particulars. It is the first time that in Italy, under didactic form, a book has come to light in which the conquests of modern science have been courageously and with sincere faith proclaimed; and though here and

there too many mathematical calculations, and a style not always clear and serene, render the exposition difficult, yet no one will fail to recognize the great value of a work so profound throughout. Sergi in developing with unity of conception the different psychic phenomena, not merely analyzes part by part the theories of cotemporary psychologists, but he frequently advances original and acute observations. He (that we may cite some of these) admits that sensation, even in its first appearance, is a phenomenon that includes perception, and the perceptive character is given by the quality of this same sensation.

He explains the localization of sensations by the hypothesis of the "reflex nervous" wave, rather than by the theory of "local signs." His method of interpreting the ideal process, by finding the passage from sensation to idea, is also ingenious.

But it is time that we hasten to conclusion.

If in Italy scientific work is now fervid, and in the salutary awaking of positive psychology there concur the active forces of the kindred sciences, but especially of physiology, which is its indispensable foundation, we believe that no less an efficacy will be exercised over its progress by psychiatry, before which an unbounded horizon is opening up.

The study of morbid processes (and this is a great and never to be forgotten truth), many times reveals the mechanism and the genesis of the function of the sound organ, for between pathology and physiology there is no antithesis; the one is but a modification of the other. Those phenomena which in ordinary conditions, for so many reasons evade the attentive eye of the experimenter, are shown in the change to disease in conspicuous and sometimes exaggerated lineaments; for disease is a physiological experiment of most subtle, precise and precious nature. The same relation passes between psychological science and psychiatry. In Italy there are not wanting distinguished cultivators of this noble art who have understood and have demonstrated how rich a contribution

of investigations, and what an inexhaustible mine of observations, the study of mental diseases is able to contribute to psychology. Livy, that brilliant genius and artist, has left it written in one of his beautiful essays, that insanity often enables us to anatomize, to decompose into its minutest parts, the stupendous synthesis of the human intellect.

"The adamantine, invincible poniard of analysis," he writes, "which is penetrating ever deeper into the intimate nature of inorganic matter, and has constrained even the sun to reveal himself from his far distant sphere, is to-day thrust into the human *ego*, and where there once appeared acts, or phenomena, or simple indivisible faculties of pure spiritual essence, it finds instead a marvelous and complicated conjunction of material orders and forces. Insanity, that malady which dissolves the natural bonds of ideation and volition, now shows us these elements detached and distinct. As the knife of the anatomist, it separates and anatomizes the human spirit; but as the microscope it also magnifies and exaggerates. Certain trivial intellectual appearances, certain recondite and fleeting instinctive inclinations of our nature which steal away when we study the *ego* in normal conditions, rush forth impetuously in insanity, to assume strange and monstrous forms and dimensions. Beautiful or brutal as may be these nudities of the human spirit, which psychology would not or could not see, insanity regardlessly exposes them. It will seem a paradox. But it is true that many of the infinite aspects of human reason have been uncovered by insanity."

Psychiatry, in thus studying the mental forces in their morbid deviations and in the methods adapted to their restoration to normal activity, makes an integrant part of psychology, and is at the same time its necessary complement. Unless we would adulterate and break up the unity of nature, we must recognize the fact, that the physiology and the pathology of mind constitute but two branches of one sole science.

Mechanisms of Control in the Nervous System and Their Functions.

A NEW THEORY.

By E. F.

ABOUT one hundred years ago physiologists and pathologists began seriously to call in question the soundness of a doctrine which, from the most remote period, had been received as satisfactorily explaining the functions of the nervous system. This doctrine, founded on gratuitous assumption, was accepted by Plato, taught by Galen, amplified by Descartes and received without question by the greatest thinkers down to the last quarter of the century preceding that in which we live. It is thus succinctly formulated by Haller, the greatest physiologist of the eighteenth century: "It appears certain that there is a fluid essence secreted from the gray matter of the brain into the hollow tubes of the medullary matter, which is carried in the tubes of the nerves to their termination, and supplies the principle whereby the nerves are rendered capable of being the organs of the senses and of movements."

This "fluid essence" was known as the "animal spirits." The ancients recognized three distinct faculties of the mind, having three distinct seats: one, the concupiscent, seated in the liver; the second, the irascible, seated in the heart; the third, the rational, seated in the brain. They imagined three spirits: the natural, which pass with the blood from the liver; the vital, carried through the arteries from the heart to every part of the body; and the animal, which are transmitted from the brain through the whole body by means of the nerves. Galen taught that the animal spirits are sent out from

the ventricles of the brain by a double movement of that organ—a diastolic, by which it receives air and vital spirits into the ventricles, and a systolic, by which it distributes the animal spirits to the nerves. Many able men, however, failing to demonstrate Galen's "double movement" of the brain, inclined to the belief that the animal spirits are generated in the substance of the brain, and dispensed directly thence through the nerves to the organs of sensation and motion. Malpighi, Willis and Sylvius de la Boi were unanimous that the animal spirits are secreted in the cortical substance of the brain, received into the medullary substance, and distributed thence through the nerves to the whole body. Malpighi maintained that the cortical substance secretes by means of a glandular structure which he pretended it contains, a coagulable serum from the arterial blood, and that it is necessary to sensation and movement that this fluid be transmitted from the cortical to the medullary matter. Unzer in the last half of the eighteenth century wrote: "The brain that produces the animal spirits sends them downwards through certain fibrilli in a nerve to the terminal parts (the sensitive papillæ), where they are received by the terminating points of other nerves and transmitted back to the brain as if to a heart." More than half a century before Bell demonstrated the fact that external impressions are conveyed towards the nerve centers by the posterior spinal nerves, and that motor impulses find their way to the muscles through the anterior spinal nerves. Unzer used the following language: "Is it not highly probable that some of the fibrils of which each nerve consists are destined solely to the transmission upwards of external impressions made in the transmitting fibrils (the animal spirits being present in them), while on the other hand, other fibrils are destined solely to the transmission downwards to the terminating fibrils of internal impressions on the brain (the animal spirits being present at the central origin), just as there are two classes of blood-vessels having similarly opposed functions?" When

Haller was unable to go so far, because as he declared: "Neither experimental nor anatomical researches support the conjecture," Unzer replied: "Neither anatomy nor experiment can determine the question, for it is so microscopically minute as to escape the cognizance of our senses. It was no part of my plan to prove the existence of two kinds of fibrils. I meditated on certain phenomena, and I found that it was impossible to explain them except by assuming that afferent and efferent fibrils do exist. The doctrine can not be absolutely demonstrated; it is but an hypothesis, and I treated it as such."

The central idea—the belief underlying all the teaching of the ancients—is that the rational soul, an invisible, living and conscious spiritual being, having its seat in the brain, as the ruler of a kingdom has his seat of government in his capital city, receives information from and transmits orders to the various organs of the body, as a ruler receives information from and transmits orders to the outlying districts of his kingdom. The nerve fibrils are the highways along which the messengers of the soul travel. The messengers of the soul are the animal spirits. These animal spirits are invested with power to transmit impressions received from gross and ponderable matter to the governing spiritual being within, and to receive from this rational soul its orders and to transmit and translate them to the material organs of the body. As imagined by the ancients, the animal spirits—neither entirely spiritual nor entirely material—unite the soul with the body, are the mysterious connecting something between pure and living spirit and gross and lifeless matter. Entertaining such a belief, it is not strange that the people of past ages found it not unreasonable to suppose that a malicious spirit from without might expel the rightful ruling soul and possess the helpless body, as a usurper might drive out the lawful king and possess his country. They said of a man careless of the welfare of his body: "He is possessed of a devil," believing that a usurping spirit controlled the body, as a usurping tyrant rules a

conquered kingdom, regardless of its welfare. It is not strange that this wonderful something which enables a spirit to control a material body should be endowed with powers altogether mysterious and as unknowable as are the powers assigned to the soul itself. Therefore, we find the animal spirits put forward on all occasions to explain phenomena otherwise inexplicable by the ancients.

In process of time the belief grew that certain functions of the body are performed without orders from a governing soul—even in spite of the soul. Descartes, the greatest by far among those who accepted the doctrine of the animal spirits, said: "The spirit or the soul does not move the limbs, but only determines the course of that very subtle liquid which is called the animal spirits. And it does not even always exert this determination, for among the movements which take place in us there are many which do not depend on the mind at all, such as the beating of the heart, the digestion of food, the nutrition, the respiration of those who sleep, and even in those who are awake, walking, singing and other similar actions when they are performed without the mind thinking about them. And when one who falls from a height throws his hands forwards to save his head, it is in virtue of no ratiocination, but takes place merely because his senses being affected by the present danger, some change arises in his brain which determines the animal spirits to pass thence to the nerves, in such a manner as is required to produce this motion, in the same way as in a machine, and without the mind being able to hinder it."

So that the brain, the home of the soul and the birthplace of the messengers of the soul, was made also a machine, automatically directing these mysterious spirits, when men could no longer ignore the phenomena of involuntary motion. So prone is the human mind to magnify the importance and multiply the offices of an instrument of mysterious power.

Of course as long as the brain was regarded as the sole center of sensation and motion, it was believed that

the "hollow tubes" of the nerves ran from the brain to their ultimate distribution without break or interruption. The ganglia of the nerves were indeed known to Galen, Fallopius, Eustachius, Willis and other investigators. But as the hypothesis used by them to explain the functions of the nervous system did not call for the ganglia, these seemingly superfluous organs received little attention. Vieussens did indeed imagine them to be receptacles of the animal spirits in which these could be nourished, preserved and rectified by the arterial blood flowing through them. A sort of post stations at which the traveling spirits might rest and refresh themselves. Lancisi assigned to the ganglia a muscular coat by which the animal spirits might be impelled forward. But these and similar speculations failed to secure recognition for the ganglia, and even the existence of these organs was by the larger number of teachers quietly ignored.

David Hartley first called attention to the existence and mechanism of automatic actions not dependent on the brain. Haller soon afterwards used the term *vis nervosa*, to designate a force which he conceived as residing in or belonging to the nerves, and which they sometimes use in exciting muscular actions. Unzer went still further in this direction, writing: "The brain is not the secretory organ of the animal spirit in all animals, since there are some that have no brain or head distinct from the trunk, yet are nevertheless endowed with *vis nervosa*, and in which, in all probability, the animal spirits are secreted in every part of the system—in every nerve and probably in every ganglion—for their limbs often retain animal life and have independent existence when separated from the body." Finally, in 1784, Prochaska used this language: "This aptitude of the nerves to receive impressions, and when received of transmitting them either way with great rapidity, does not depend solely on their medullary pulp, but it appears to be rather some other principle added to the medullary pulp, the conjunction of the two constituting the whole *vis nervosa*; and possibly the diligence of

the very sagacious observers of nature may discover whether that principle be electricity, phlogiston, or some species of air, or the matter of light, or something compounded of these. That other principle, whatever it may be, seems to come to the nerves with the arterial blood, by means of the numerous blood-vessels which accompany the nerves of the whole body throughout their whole course, and not to be sent into the nerves from the brain, as its only source, although the brain itself appears to acquire a suitable portion of the same principle through its own vessels. For the nerves when separated from the brain have equally *vis nervosa*, as the nerves in connection with the brain, and in proof hereof may be mentioned the nerves of acephalous fœtuses and of brainless animals which are endowed with *vis nervosa*, although they could not possibly derive it from the brain."

Since the time of Prochaska experiment has added from time to time to the solid body of fact which in his mind was sufficient to destroy the doctrine that made the brain the sole origin of that something which supplies the principle whereby the nerves are rendered capable of being the organs of the senses and of movements. It has been shown, beyond question, that the spinal cord, apart from the brain, is a great center of automatic action. So that we are now quite fixed in the belief that while the seat of sensation and voluntary motion may be located in the brain, nearly, if not quite all, automatic action may be found to have its origin in the spinal cord. This discovery that automatic action has its origin in regions quite apart from the "seat of the soul," has tended somewhat to destroy the belief, that the something which enables the nerves to perform their functions is possessed of mysterious and unknowable powers. This something is no longer described as a coagulable serum. It is no longer called a fluid. As long, indeed, as men believed electricity to be a fluid, they imagined also a nervous fluid; but since it has been shown that electricity is but a mode of molecular motion, the belief prevails that the animal spirits

of the ancients, and the nervous fluid of more recent times, is a molecular motion of nerve substance; a manifestation of physical force. Our more advanced thinkers regard this force as one form of that primordial force which may otherwise manifest itself as attraction, as sensible motion, as electricity, as heat, as light, as chemical affinity. It has, therefore, been thought not improper to use the term "nerve force," in the absence of a better designation, when we name that something which enables the nerves to perform their functions.

But mysticism has not entirely given way to the doctrine of physical force manifested through appropriate mechanism. In spite of the fact that by universal consent we now expect nothing from nerve force which may not be looked for in the manifestations of a purely physical force, there does remain even in the scientific mind of this age a strong tendency to return to mysticism when attempting to explain the functions of the nervous system. Any attempt to reduce the complexities of animal motion and feeling to law and order, arouses that element of conservatism in the human mind which preserves the shells of old forms of belief even after the life is gone out of them; and it is at once apparent that the belief is yet strong that a considerable part of the physical processes of life are not capable of being explained in the same way as other physical phenomena, and that in brief the living body is not a mechanism, the action of which may be understood.

The ancients, believing that in some mysterious way the animal spirits controlled and regulated all the functions of the body which distinguish the animal from the vegetable, made no effort to demonstrate a mechanism through which such wonderful results are accomplished. The "hollow tubes" of the nerves, the highways used by the animal spirits, permitted these mysterious servants of the soul to travel to and from all parts of the body, and this seemed sufficient explanation of the matter. The presence of the animal spirits in any organ was received as accounting

for the functional activity of that organ. And modern teachers have not entirely departed from this belief. They no longer imagine the nerves to be highways along which spirits pass to and from the brain, but having invented the telegraph, they simply substitute a system of conducting nerve fibres for the hollow tubes of the ancients, and instead of animal spirits they imagine "a change in the substance of the nerve," a "molecular motion of nerve substance," propagated toward the receiving organ, as sufficient explanation of all the phenomena of the nervous system. If we should be satisfied with the statement that the molecular motion which takes place in a conducting wire is sufficient explanation of the action of a Morse instrument, we should be as near the truth as are those who so attempt to explain the manifestations of nerve force. Until we thoroughly understand the mechanism of the entire nervous system, we may not hope to reduce the complexities of animal motion and feeling to law and order. For we must assume that nerve force is made manifest in accordance with unchanging law, and through appropriate mechanism if we hope to get away from mysticism.

It is not strange that the ancients, feeling no necessity for a more complicated mechanism than that which afforded ingress and egress to their "spirits," paid so little attention to the ganglia on the roots of the sensory nerves, and to that mysterious chain of ganglia known as the great sympathetic, all of which are certainly parts of that mechanism known as the living body. But, that modern investigators should continue to ignore these important organs is something which calls for more than passing consideration. It is true that certain investigators have found interest in the great sympathetic. Among these was Bichat, whose observations led him to make a bold departure from accepted doctrines. Writing about the year 1813, he used this language:

"No anatomist has yet considered the nervous system of the ganglions in the point of view in which I shall present

it. This point of view consists in describing each ganglion as a distinct center, independent of the others in its action, furnishing or receiving particular nerves as the brain furnishes or receives its own; having nothing in common except by anastomoses, with the other analogous organs; so that there is this remarkable difference between the nervous system of animal life and that of organic life, viz: that the first has a single center and that it is to the brain that every kind of sensation comes, and it is from the brain every kind of motion goes; while in the second there are as many little separate centers, and consequently, little secondary nervous systems, as there are ganglions.

"From the general idea I have just given of the ganglions, it is evident that this nerve (the great sympathetic) has no real existence, and that the continuous thread that is observed from the neck to the pelvis is nothing but a succession of nervous communications, a series of branches that the ganglions placed above each other send reciprocally to each other, and not a nerve going from the brain or the spine.

"The first consideration that induced me to think that the great sympathetic is not a nerve like the others, but a series of anastomoses, were the following: 1, These communications are often interrupted without inconvenience in the organs to which the great sympathetic goes. There are subjects, for example, in whom is found a very distinct interval between the pectoral and the lumbar portions of this pretended nerve which seems cut in this place, because the last pectoral and the first lumbar do not send branches to each other. I have often seen, also, the sympathetic nerve cease and afterwards appear again between two ganglions, and from the same cause, whether in the loins or in the sacral region. 2, Every one knows that the ophthalmic ganglion, the sphenopalatine, etc., are constantly distinct, and that they do not communicate by their branches except with the cerebral nerves. It uniformly happens that there is between them

and those of the great sympathetic, what we sometimes see between these last, viz.: a complete deficiency of communication. 3, In birds, as has been observed by Cuvier, the superior cervical ganglion is also constantly found distinct. It never communicates with the inferior. The filament, which in quadrupeds descends the length of the neck, is wanting in them. In many other animals we frequently find interruptions in this succession of anastomoses of ganglions, which constitute what is called the great sympathetic. 4, The communications of the ganglions are usually made by a single branch, but sometimes many go from one of these organs to the other; so that if the great sympathetic was a nerve like the others, it would present in this respect an arrangement wholly different from that of the cerebral nervous system. 5, Whence does the great sympathetic arise? From the sixth pair? But all the nerves diminish as they go from the brain towards the organs, but this presents then an arrangement entirely different; it increases as it sends off branches. Does it arise from the spinal marrow? But then the branches with which it furnishes a region would come from the branches that it receives from the spinal marrow in this region. Thus the great and small splanchnic would arise from certain intercostal pairs; now they evidently are much larger, the first especially, than the sum of the branches from which they would derive their origin. Observe then that all anatomists have been of a different opinion upon the origin of the great sympathetic. How could they agree upon a thing which has no real existence?

“These different considerations render probable the opinion that I have entertained for some time, that the great sympathetic nerve does not really exist; that this cord is but a succession of communications between little nervous systems placed above each other, and that it is not essential that these communications should exist, as is constantly seen between the ophthalmic ganglion and the speno-palatine, between that and the superior cervical

of which many animals furnish examples. Then I began to regard each ganglion as a separate center of a little nervous system, wholly different from the cerebral, and distinct from the little nervous systems of the other ganglions.

"I have no opinion as to the nature of the functions of the ganglions, because I have no fact to support me; but there is certainly something more in their texture than a mere expansion of nervous filaments.

Here Bichat permitted the matter to rest, refusing in his strict adherence to the Newtonian method of philosophizing, to assume anything. We can but regret that he did not indulge his imagination. The inductive method, invaluable in exposing error, needs the help of the deductive to discover truth. Herbert Spencer has shown that every generalization is at first an hypothesis, and that in seeking out the law of any class of phenomena, it is needful to make assumptions respecting it, and then to gather evidence to prove the truth or untruth of the assumptions; that in fact the most rigorous adherent of the inductive method can not dispense with such assumptions, seeing that without them he can neither know what facts to look for, nor how to interrogate such facts as he may have.

Bell, in giving an account of his discovery, used this language: "On finding this confirmation of the opinion that the anterior column of the spinal marrow and the anterior roots of the spinal nerves were for motion, the conclusion presented itself that the posterior column and posterior roots were for sensibility. But here a difficulty arose. An opinion has prevailed that the ganglia were intended to cut off sensation, while every one of the nerves which I supposed were the instruments of sensation had ganglia on their roots. By pursuing the inquiry, it was found that a ganglionic nerve is the sole organ of sensation in the head and face also, and thus my opinion was confirmed that the ganglionic roots of the spinal nerves were the fascies or funiculi for sensation."

Unzer, fifty years before, had observed the location of ganglia alike on the posterior spinal roots and on the fifth cerebral nerve, recording his conclusions in this language: "He who shall unravel the ganglia will also give reason why the fifth pair of cerebral nerves pass through the semi-lunar (Casserian) ganglia, with the exception of a fasciculus which joins the third division without touching the ganglia, and why only the posterior roots of the spinal nerves enter the ganglia, whilst the anterior roots pass by without any communication with them."

It is somewhat singular that Unzer who first imagined the theory of afferent and efferent nerves, afterwards demonstrated as true by Bell, also called especial attention to the fact that those nerve roots which Bell afterwards showed to be the instruments of sensibility, are all alike furnished with ganglia. And it is more than singular that both Unzer and Bell—the latter having been partly led to his discovery by the uniform occurrence of ganglia on sensitive nerve roots—should have failed to assume any function whatever for these organs. "I conceive," said Bell, "that these bodies consist of the same matter with the brain. * * * They are undoubtedly organs of importance." But as the impression made upon a nerve of sensation seemed to reach the brain by passing directly through the ganglion, Bell felt that the hypothesis which assigned to the ganglia the duty of cutting off sensation was puerile, and imagining no other, he simply ignored that theory, and with it the ganglia themselves. Like Bichat, he had 'no opinion as to the nature of the functions of the ganglions.'"

Since the time of Bell the belief has grown that the so-called sympathetic nerve has something to do in controlling the blood supply of tissues. Indeed it is known that the nerve *fibres* of the sympathetic contribute to that office. This discovery, ranking, in importance with that which immortalized the name of Harvey, was made by Brown-Sequard, one of the ablest and most conscien-

tious investigators the world has ever known. Writers differ as to the origin of these sympathetic fibres, but the most generally received opinion fixes their origin in the spinal cord or brain, and makes them pass directly through the ganglia, leaving these without a function.

Brown-Sequard, writing in 1873, said: "Prof. Cl. Bernard published the results of his first researches on the effects of the section of the cervical sympathetic nerve in 1851, and in the beginning of 1852. The only great fact announced in the publications was that this section was constantly followed by a considerable afflux of blood in the parts of the head to which the sympathetic goes. Led by experiments that I had made several years before on the influence of nerves on blood-vessels, I understood at once that the fact discovered by Prof. Bernard was due to the paralysis of the blood-vessels after the section of the sympathetic, and I thought that if this view were right, I should find galvanization of this nerve producing the reverse of the effects of the section. The experiment being made I found, as I had foreseen, that the blood-vessels contracted and that the quantity of blood and the temperature diminished." The date of his first publication of this discovery is August 1, 1852. (*Philadelphia Medical Examiner*, August, 1852, page 489.)

The theory he then proposed has since been admitted by almost all the physiologists writing on this subject. Twenty years afterwards he used this language:

"Now to sum up all we have stated about the sympathetic nerve we will say, first, that it is essentially (though not exclusively) a motor nerve of blood-vessels; secondly, that it originates chiefly from the cerebro-spinal axis; thirdly, that its paralysis is characterized by a dilatation of blood-vessels and an afflux of blood, with the results of this afflux; fourthly, that its excitation, direct or reflex is characterized by a contraction of blood-vessels and the results of this contraction."

It seems to me very probable that the failure on the

part of this able man, as shown in this statement, to imagine a function for the ganglia of the sympathetic, prevented him from demonstrating an hypothesis suggested to his imagination, and which is indicated in the following language used by him:

"The question now comes, can we explain all the phenomena, normal and pathologic, showing the direct or the reflex influence of the nervous system on nutrition and secretion, by the above notions concerning the effects of paralysis or excitation of the sympathetic nerve on blood-vessels? For several years I have felt inclined to admit the possibility of an explanation of these phenomena founded only upon these notions, but I must say that the facts discovered by Ludwig, by Czermak, and especially by Professor Bernard, seemed to have solved the question in the most positive manner, and that it seems absolutely certain that there is some agency of the nervous system which is not simply an influence on the constricting muscular fibres of the blood-vessels, in the normal or pathologic phenomena of nutrition and secretion. The principal, among these facts, is the following: Instead of *contracting*, the blood-vessels of the salivary glands *become enlarged*, when certain nerves are excited."

Here we see an investigator unsurpassed in the world's history in the careful interrogation of facts and in peculiar skill displayed in the selection of true hypothesis, arrested upon the very eve of demonstrating that nerve force acts in all cases as a purely physical force, and driven back upon mysticism, when confronted with Bernard's seeming demonstration of an absurdity, viz: that the irritation of one nerve fibre produces at the extremity of that fibre muscular contraction, while the irritation of another nerve fibre produces at its extremity muscular relaxation. And I can account for this result only in the belief that this able investigator, following the ancient custom of ignoring seemingly unnecessary organs, failed to assign a function to the ganglia of the sympathetic.

It seems to me that the time has arrived for a more

careful questioning of the immense body of fact now lying without arrangement in the records of science, in the light of the reasonable belief, that absolutely every part and organ of the nervous system is entitled to consideration in any serious attempt to understand the working of the mechanism through which the nerve force—a purely physical force—manifests itself. A competent machinist would certainly so question facts if he attempted to understand and explain the working of a machine driven by steam power.

II.

In 1869 certain facts fell under my observation, which so strongly impressed my imagination that I found myself, without having consciously formed any resolution to investigate the matter, classing with them in my mind other like facts which presented themselves from time to time; so that it became a sort of habit with me to accumulate facts which seemed to me as probably belonging to a certain series.

These facts as they arranged themselves in my mind, suggested to my imagination an hypothesis which seemed to me to offer a more satisfactory explanation than has heretofore been given of the remarkable phenomena known as reflex action.

When I had reached this point in 1872, I no longer left the matter to chance observation, but began systematically to gather facts, of whatever nature, which might tend to refute or to sustain the theory which had been produced in my imagination.

Since that time I have devoted the leisure hours of a busy life to investigation in the line indicated. The first result of this conscious and systematic investigation was the discovery that the new hypothesis, would, if it could be established as true, not only afford an explanation of the phenomena of reflex action, but would explain also the action of the nervous system, in at least some of

the processes of nutrition and secretion, as well as the so-called "inhibitory" action of certain nerves.

Believing that a new hypothesis is necessary to enable the scientific thought of this age to properly utilize the mass of fact which has overthrown the ancient belief, I am moved to submit the doctrine, first enunciated, I believe, in this paper, to the scrutiny of experimental and anatomical research, which, I am persuaded, will soon establish it as true, or utterly destroy it, provided it shall seem of sufficient importance to deserve attention from any one of the eminent men now devoting their lives to such investigations. I wish to be distinctly understood as presenting an hypothesis; and if I shall, for convenience of statement, seem to assume the doctrine to be established as true, I wish to be understood as using such form of speech only to avoid undesirable ambiguity of expression. I submit this paper as only a sketch of the conclusions which seem to me reasonable, and not at all as a full presentation of all the facts which seem to support the hypothesis. Also, to avoid the appearance of fitting facts to theory, I present here only such facts as are already of record, reserving for the future an account of certain experiments which I have made in the light of this hypothesis.

I have been led in the manner above indicated to think it very probable that the sole office of the nerve force is to induce muscular contraction;* and I am

* I do not overlook the fact that many able writers have seemed inclined to accept the doctrine that nerve force *in no case* induces muscular contraction. Dr. Thomas W. Poole, in his very interesting work, "*Physiological Therapeutics*," printed in Toronto, in 1879, presents the theory that "the influence exerted by the nervous system in its relations with muscular tissue is that of a *restraining*, and not that of a compelling power." That is to say, that the nerve force prevents the muscle, subject to its influence, from contracting; and that its absence permits the muscle to manifest its inherent contractile power. While Dr. Poole does not claim originality in this theory—and cites indeed the facts that in 1832, Dr. West, of England, published an essay presenting like views, and that soon after, Sir Charles Bell said: "that relaxation might be the act, and not contraction, and that physiologists, in studying the subject, had much neglected the mode by which relaxation is effected"—he, nevertheless, makes a much stronger argument than has heretofore been submitted in support of the theory. Indeed he presents an imposing array of facts tending to sustain his doctrine. But as he entirely ignores the ganglia of the

inclined to assume that the working of that machine, constituted by the union of nerve cell through nerve fibre with muscle fibre, affords, when considered in its proper relation with facts already well known to science, satisfactory explanation of the phenomena of animal life. The few facts which I here submit as tending to establish the truth of this theory, so long as they remained isolated, conveyed to my mind little meaning, but having been arranged and considered as probably bearing upon the hypothesis stated, they seem to me to take on a new significance, and to demand in the light of this new significance, more careful attention than they have heretofore received from conscientious observers.

I present first, certain facts which seem to me, when questioned and arranged in the light of the assumption above indicated, to explain satisfactorily the phenomena of so-called reflex action.

Huxley, writing of reflex action, says: "We know exactly what happens when the soles of the feet are tickled; a molecular change takes place in the sensory nerves of the skin, and is propagated along them and through the posterior roots of the spinal nerves, which are constituted by them, to the gray matter of the spinal cord; through that gray matter the molecular motion is reflected into the anterior roots of the same nerves, constituted by the filaments which supply the muscles of the leg, and traveling along these motor filaments reaches the muscles, which at once contract, and cause the limb to be drawn up." He sums up the whole matter in this sentence: "The spinal cord converts impressions into movements."

I think this is a fair presentation of the modern theory of automatic action, which is unsatisfactory in

sensory nerves, and of the sympathetic, he cannot claim that he has recognized and questioned all the facts which might tend to sustain or refute his theory. I believe he will find the functions I assign to these organs satisfactory, in explaining phenomena heretofore regarded as inexplicable, and which seem to sustain his theory, only because they have not been properly understood.

more than one particular. This theory assumes that something which reaches the cord, by way of the nerves of sensation, is by the cord reflected by way of the motor nerves to the muscle. It also assumes that this something which reaches the cord as an impression leaves it as a movement. Leaving as it does so much unexplained, it is certainly vague enough even for the ancients. This modern theory is not essentially different from that taught by Descartes; and Prochaska, whose statement of it is very similar to that of Huxley, confesses the mysticism in which it is involved, in the following language:

“The external impressions which are made in the sensorial nerves are very quickly transmitted along the whole length of the nerves as far as their origin, and having arrived there, they are reflected by a certain law, and pass on to certain and corresponding motor nerves, through which, being again quickly transmitted to muscles, they excite certain and definite motions. * * * The reflexion of sensorial into motor impressions, which takes place in the sensorium commune, *is not performed according to mere physical laws*, where the angle of reflexion is equal to the angle of incidence, and where the reaction is equal to the action; but that reflexion follows according to certain laws, writ as it were by nature, on the medullary pulp of the sensorium, which laws we are able to know from their effects only, and *in no wise to find out by our reason.*”

This is as satisfactory as if one should say: The engineer pulls a lever, and his action being quickly transmitted to the steam engine is reflected by a certain law, and passed on certain bands to a machine, whose wheels at once go round. Such a statement would be considered ridiculous if applied to any machine made by man. And we must conclude that such a statement is made applicable to the living machine only because we do *not* know “exactly what happens when the soles of the feet are tickled.”

It is indeed, not known definitely, just what part is performed by the nerve cells in the spinal cord when automatic movements are induced. Rosenthal, writing in 1881, said: "There is no doubt that, in this process the nerve cells play a part, and that the process does not depend solely on the direct transference of the excitement from a sensory nerve fibre to an adjacent motor nerve fibre. Apart from the fact that the transference never takes place except where nerve cells can be shown to be present, this is confirmed by the fact that the process of reflex transference occupies a very noticeable time — much longer than that required for transmission through the nerve fibres. With the knowledge which we have now gained of the structure of the central nervous organs, it may be considered established that no where is there immediate connection between sensory and motor fibres, but a mediate connection through nerve cells."

Now, the phrase, "a very noticeable time," as used in this connection suggests, certainly, not a simple transition of force; it implies rather the exercise of such functional activity as demands an increased blood supply. This increased blood supply suggests the origin, or the setting free, in the spinal center of a force, which, propagated along the motor nerve to the muscle, manifests itself in sensible motion. It seems to me not unreasonable to suppose that this setting free of a force is due alone to an increased supply of arterial blood. It is now the received opinion that muscular contraction is the result of chemical changes taking place in the muscle. Rosenthal says: "The nerve is but the spark which causes the explosion in the powder mine. The forces which are set free within the muscle are chemical, due to the oxidation of its substances; the irritant originating from the nerve is only the incitement in consequence of which the chemical forces inherent in the muscle come into play. "Physicists call such processes the "freeing of forces."

Of course it is understood that such freeing of forces is only possible in the case of unstable equilibrium. And, while, in the case of the muscle an extraneous excitement seems essential to the commencement of such chemical action as results in sensible motion, there is no reason to suppose that in the case of the nerve cell anything more is needed than a free supply of arterial blood.

The fact that there is a larger supply of arterial blood in a nerve center actively performing its function, than is found there when the organ is at rest, seems to be generally admitted. Van Der Kolk says: "It has been clearly ascertained that, for the restoration of the activity of the ganglion cells a certain quantity of arterial blood is required, on the effect of which, on the ganglion cells their capability of action depends. Quite in accordance with this is the great number of blood-vessels which are present in the gray substance of the spinal cord and brain, in comparison with the so-called white or medullary matter which is produced by the conducting filaments." Fritsch and Hitzig, whose experiments showed the location in the gray matter of the hemispheres of the brain, of certain motor centers, found that after severe hemorrhage the excitability of the gray matter disappeared. From the time of Haller to the present day, the amount of blood sent to the brain has been estimated at one sixth of the entire volume of blood in the body. The lowest estimate is one-tenth. Byasson estimated exactly the quantity of phosphates and sulphates which entered into his diet, and also the quantity excreted. At the end of a certain time, these fundamental data having been ascertained, he began to work his brain, and in proportion to the amount of his work, the diet remaining constant, the quantity of sulphates and phosphates excreted by the urine had increased in a notable manner. We, therefore, accept as true the declaration of Luys, that: "The continuity of the sanguine irriga-

tion is the *sine qua non* of the regular working of the nerve cell;" which is indeed implied in the very comprehensive statement of Bell: "In proportion to the intensity with which the function of a part is performed is its supply of blood."

We are forced to believe, therefore, that the impulse which is propagated from the peripheral extremity of the sensory nerve does, in some way, cause a dilatation of the blood-vessels supplying the ganglionic cells in the spinal center, and a consequent afflux of blood in that center. I do not, of course, overlook the fact that the cause of this increased supply of arterial blood in the nerve center is as obscure as is that which increases the supply of blood in the salivary gland when a certain nerve is irritated. Indeed, I imagine the action to be identical in kind in both cases. And I think a like mechanism increases the blood supply in an active muscle. Bell offered this explanation of the increased blood supply in the functioning muscle: "If the muscles of animals require much and long exertion, they require also more blood to preserve an increased irritability or power of action. The heart assumes an activity proportioned to the blood which it receives. The office of the lungs is to render the blood capable of supporting the life of the body, and in an especial manner the irritability of the muscles. The circle of operations is in this succession: the muscles compress the veins; the heart is distended with blood; the lungs are excited by the state of the heart; the activity of the circulation and the respiration is thus promoted, and the effect is that circulation in the muscles is increased and their irritability increased." It is interesting to note the fact in this connection that Prochaska, nearly half a century before, had announced, as a discovery of his own, that the arrival of a largely increased supply of blood in the arteries of the muscle, brought there by some mysterious action of the nerves—"derivation," they called it in his day—was the direct cause of muscular contraction, and that the only action

of the nerves in the matter was the mysterious derivation of blood to the arteries of the muscles. Since the time of Bell and Prochaska, we have progressed to the belief now generally taught, that the relaxation of the arteries permitting an increased supply of blood in any organ is the result of some mysterious function peculiar to certain nerve fibres. Of this, Dalton says: "Beside the nerve fibres which cause contraction of the blood vessels, there are others which cause their dilatation." These imaginary nerves are called dilator nerves. But Brown-Sequard, seemingly unable to imagine such action in a nerve, fell back upon the old "derivation" theory when confronted with Bernard's experiment, using this language: "I think this enlargement in the blood-vessels must be due to a greater attraction of the arterial blood by the tissues of the gland; we explain the increased attraction by the production of the chemical interchanges between the secreting tissue and the blood, which are rendered manifest by the secretion of saliva then taking place." I wish here only to call special attention to the fact, that it is highly probable that the mechanism through which external irritation applied to the sensory nerve, causes dilatation of the arteries and consequent activity of function in the spinal center, is very like that through which irritation applied to a certain nerve, as shown in Bernard's experiment, causes dilatation of the arteries and consequent activity of function in the salivary glands. And further, that it is very probable that the arterial dilatation known to occur in an active muscle, is due to the action of like mechanism. In considering, therefore, the matter of reflex action in the light of the theory here offered, we should, in great measure, find explanation also of the phenomena of secretion and nutrition.

Landry has shown, that if we cut the spinal cord of a living animal into separate segments, we shall find that each segment will isolatedly give rise to a series of independent motor phenomena; and that, as long as the blood-currents continue to feed the cells, they will

continue to live their morphological life and to perform their proper functions. This, taken in connection with the statement of Bichat, who certainly showed the independent action of the ganglia of the sympathetic, suggests the assumption that each segment of the spinal cord, with its pair of attached spinal nerves, and its pair of attendant sympathetic ganglia, is a machine, the working of which may be understood.

We may, therefore, to simplify matters, consider at this time, only one such segment of the cord, with the apparatus pertaining thereto. And we must consider without bias every part of this machine, assigning to each such proper function as facts well known to science may warrant, and no other.

As we are bound to believe that an impression conveyed by the sensory nerve to the segment of the spinal cord to which it is attached causes the arteries of that segment to dilate, we may first consider this matter.

Huxley, referring to the control exercised over the blood supply by the contractility of the vascular fibres says: "This contraction may go so far as in some cases to reduce the cavity of the vessels almost to nothing, and to render it practically impervious. The state of contraction of these muscles of the small arteries and veins is regulated by the nerves supplied to the vessels; or in other words the nerves determine whether the passage through these tubes shall be free and wide, or narrow and obstructed. The contraction or dilatation of the arteries comes to the same result as lowering or raising the sluice-gates of a system of irrigating canals." He cites the phenomena of blushing as illustrating the matter, and uses this language: "The blood is a red and hot fluid. The skin reddens and grows hot because the vessels suddenly contain an increased quantity of this red and hot fluid, and its vessels contain more because the small arteries suddenly dilate, the natural, moderate contraction of their muscles being superceded by a state of

relaxation. In other words, the action of the nerves which cause this muscular contraction is suspended."

Now, as we must believe that there are nerves whose office is the conduction of nerve force to the muscular walls of the small arteries in the skin, which nerve force, constantly transmitted to the muscles, causes that "natural, moderate contraction" which is superseded by that relaxation of which the blush is the result, and as this relaxation is only temporary, and so to speak, accidental, we must also believe that this almost constant supply of nerve force is the result of the functional activity of some group of nerve cells well supplied with arterial blood. We cannot reasonably believe that such a constant supply of nerve force is the result of incidental extraneous irritation. Rosenthal says: "Excitement can never occur of itself in a nerve fibre, or pass from one fibre to another, but remains isolated. Where nerve cells occur excitement can originate without any visible external irritant." So that, as the only known sources of excitement which may be propagated as nerve force, are external irritation and the functional activity of nerve cells, we are forced to the conclusion that an almost continuous supply of nerve force implies a ganglionic center from which it proceeds. If we must believe this of the small arteries of the skin we may safely assume a like arrangement designed to regulate the supply of blood sent to the spinal center.* And if there exists a collection of nerve cells whose office is to supply nerve force, which holds in a state of "natural and moderate contraction" the muscular walls of the small arteries in the spinal center, this collection of nerve cells must be looked for on the line of the so-called sensory nerve, for we find that excitement propagated along that nerve towards the spinal center, in some way suspends the action of the nerves controlling the

*Since this paper was written my attention has been called to the following language used by W. R. Gowers (Lectures on Diseases of the Brain, 1885): "It is probable that the nervous system is full of mechanisms whereby action of certain centers is controlled by that of other centers; and it is probable that the chief mechanism of this association is control, and that what we call excitation of one center by another may be very often simply a lowering of control, permitting activity."

arteries of the spinal center, and permits these arteries to dilate.

Is it not, therefore, highly probable that one office of the ganglion on the root of the sensory nerve is to supply nerve force, which, when propagated to the spinal center, "lowers the sluice-gates of a system of irrigating canals," thus interrupting "the continuity of the sanguine irrigation which is a *sine qua non* of the regular working of the nerve cell," in that spinal center, and permitting those cells to rest?

If we follow in imagination the impulse from the periphery towards the spinal center, believing that the sole office of the nerve force is to induce muscular contraction, we find that impulse communicated directly to the muscular coats of the small arteries in the ganglion, on the root of the sensory nerve, causing these arteries to contract. This contraction of the arteries of the sensory root ganglion shuts off at once the supply of arterial blood to that ganglion, and its functional activity suddenly ceases. The arteries in the spinal center as suddenly dilate, "the natural and moderate contraction of their muscles being superseded by a state of relaxation." In other words: "the action of the nerves which cause this contraction," in the spinal center, "is suspended." It is suspended because the cells in the root ganglion are at rest; at rest because some irritant from without has forced the muscular coats of the arteries supplying them with blood to contract. So that Herbert Spencer stated only the truth when he said: "It is beyond question that, from the zoophytes upwards, touch and contraction form an habitual sequence." The seeming absurdity, that an external touch is followed by the dilatation of the arteries of the spinal center or of the salivary gland, did seem to contradict Mr. Spencer. But, as here considered, his statement stands. An external touch is followed by contraction of the muscular walls of the arteries in the ganglion on the sensory nerve root. This is, perhaps, the sole effect of external irritation, as

it presents itself for consideration with other phenomena of reflex action. It expends itself in the sensory root ganglion, and is expressed there as muscular contraction. The resultant activity of the spinal center is caused by an afflux of arterial blood; the blood flows into the spinal center because its arteries are dilated, and the arteries are dilated because they are no longer contracted by nerve force from the sensory root ganglion. When the external irritant is removed, the arteries of the root ganglion, no longer excited to contraction, suddenly dilate; that organ is again supplied with arterial blood, and nerve force, originating in its cells, passes to the muscular coats of the arteries in the spinal center, contracting the arteries and laying the cells in that center asleep.

The functional activity of the spinal center, induced in the manner above indicated, evolves nerve force, which is communicated to the anterior nerves, "constituted," as Mr. Huxley says, "by the filaments which supply the muscles of the leg, and traveling along these motor filaments reaches the muscles, which, at once, contract and cause the leg to be drawn up."

As the muscles of the leg, when incited to activity receive an increased supply of blood, we must suppose that the mechanism through which this result is reached is not unlike that we have imagined as controlling the blood supply in the spinal center. And we find in fact, that while certain of the fibres of the motor nerve proceed directly from the spinal center to the muscles of the leg, certain other fibres from the same root proceed to a small ganglion situated near to the spinal column, and that from this small ganglion, nerve fibres proceed to the arteries of the muscles which move the leg. This small ganglion is one of a double chain of ganglia on the sides of the spinal column, running through the great cavities of the body. This double chain of ganglia with fibres of communication is called the sympathetic nerve. Of this so-called sympathetic nerve Brown - Sequard

says: "It is essentially a motor nerve of the blood-vessels."

The nerve force being transmitted from the spinal center to its attendant sympathetic ganglion goes no farther, but closing the arteries of that ganglion, shuts off the supply of nerve force, which, when not interrupted from the spinal center, flows continuously from the sympathetic ganglion to the arteries in the muscles of the leg. The nerve force from the sympathetic ganglion being suspended, the arteries in the muscles of the leg are permitted to dilate. So that the same force which directly contracts the muscles of the leg, indirectly, through the mechanism of the sympathetic ganglion, permits the arteries in those muscles to dilate.

Is it not, at least, highly probable that the office of the sympathetic ganglion is similar to, if not identical in kind, with that of the ganglion on the root of the sensory nerve, viz: to supply nerve force, which, when propagated along nerves, communicating with the muscular walls of the arteries of an adjacent organ, "lowers the sluice-gates of a system of irrigating canals," and so permits that organ to rest?

[*To be Continued.*]

States of Delirium in Inebriety.*

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WHEN the different phases of delirium noted in inebriety are studied as particular stages of the disease, one is amazed at the new realm of pathological and psychological facts which appear. Why certain forms of delirium should be regarded as a special disease, called delirium tremens, and exempt the person from responsibility in law, is a mystery. Why this particular delirium has been so carefully studied, and all the early stages of the case been dismissed with the remark, that this or that form of alcohol had been used to excess, is equally strange. No special study of the delirium of typhoid or other fevers would indicate the nature and character of the real disease. No particular study of the deliriums of the insane would reveal the history and causation of insanity. Hence all study of delirium tremens, or other forms of delirium coming from the use of alcohol, are worthless and misleading, unless they are combined as chapters in the history of the case. In a late hospital report two hundred cases of delirium tremens are recorded, the age of the patient, his social state and the kind of spirits drank, comprise all the past history given. This report with its acute studies of the forms and progress of the delirium, the remedies used and the results, is of no value.

In all these cases there were distinct premonitory stages, degrees of delirium and hallucinations, that could

* Read at the semi-annual meeting of the American Association for the Cure of Inebriety, May 21, 1885, at Brooklyn, N. Y.

and should have been recognized. Groups of causes and conditions that retarded or accelerated the progress of the case. "Switch points," where recognition and treatment would have stayed or cut short the march of the disease. Neurotic taints and heredities, nutrient perversions, degenerations of both brain and organism, and an almost infinite variety of external and internal causes, entering into the history of the case, which pointed to a future stage of delirium tremens, dementia, idiocy, epilepsy and almost every form of paralysis and insanity.

The absence of any of these facts are fatal to the value of the history of the case. My object is to call attention to some of these early stages of delirium that are unrecognized in practice at present. In a class of persons who use alcohol to excess at times, and are not regarded as inebriates, these masked deliriums are often prominent. Thus, in a case of a quiet, methodical business man, who at times drank to excess, then abstained for indefinite intervals, during and after his drinking he would manifest intense and unusual activity in business. He would take an inventory of stock, balance his books, look over all his securities, and exhibit great suspicion of being cheated. In a few days he would settle down to his former habits of business. These deliriums always came on when using spirits, and while his judgment seemed unimpaired on other matters, his desire to increase his business, and protect himself from loss, absorbed every other consideration. In the second case, a lawyer who drank wine steadily, and only occasionally to excess, would at long intervals have what his friends termed, not inappropriately, "a horse mania." In this he would go from place to place trying to buy fast horses. He did not purchase, but tested many horses, and talked a great deal of their merits or demerits. When free from spirits he never manifested any taste for horses, rarely ever rode behind one, and was never seen on a race track. This delirium lasted a

few days, and at no time did he seem unconscious of his acts and surroundings, and said, in explanation of his strange conduct, that he could not help it, and really wanted a horse at this time, but could not be suited. In a third case, a farmer who usually drank to excess on all holidays and special occasions would have a delirium to adopt small infants. He had no children and seemed to dislike them at any other time. He would in this state drive about the country and talk and act quite rational, visiting families who had small babes, and talk at great length about adopting them as his own. In the fourth case, a physician who at irregular intervals drank to excess, at the close of his drinking period became an enthusiastic musician, buying various horns and spending hours in practice. This lasted two or three days, and absorbed every motive and thought; then it was dropped and only taken up again when another drinking paroxysm came on. A fifth case, that of an inventor, a man of excellent judgment, and well read in science and mechanics. He drank steadily, and at long intervals he would have delirious dreams of perpetual motion, and shut himself up for days working on models to demonstrate the idea. In another case, a drinking man who at times was greatly intoxicated, and would recover with profound convictions of speedy death. This delirium would last two or three days, during which he would make great efforts to settle his business, bid good-bye to his friends, etc., etc. These cases were not considered inebriates or weak minded, but only odd at times. These so-called oddities were so many symptoms of grave disease.

There is a large class of so-called moderate drinkers, and persons who are not known to use spirits to any excess, that at times show great changes of conduct and character, often attributed to weak will and vice, or some state of exhaustion from overwork. There are likewise cases of masked deliriums unknown and unrecognized. A man of reputation and most excellent character who drinks at home regularly, suddenly disappears for two or

more days, then returns much prostrated and remains temperate for a long time. During this time of disappearance he is with lewd woman in some distant city, never leaving the room. He is never intoxicated, and at such times seldom drinks and seems quite clear in mind. This delirium is sudden in both its onset and termination, and did not appear during two years of total abstinence. A few months after he began to use spirits it came on again. A second case is that of a quiet, retiring physician who uses spirits irregularly in moderation. Suddenly he would develop a religious delirium, pray and exhort in public, then relapses to his old retiring habits. These states were free from any other unusual act or conduct, and only explained as impulses which he could not or did not wish to control. A third case was that of a very careful, methodical business man, who rarely went away from home, and lived a life free from all excesses. For ten years he had used spirits at meals and for any disorder or illness. Suddenly he became very restless, would drop all his business and go away traveling for two or three days. He seemed to have no plan or purpose, only saying "that he wished to go about a little." These deliriums of travel increased and, by the advice of physicians, he went to Europe and came back much worse. Finally he became insane, and died in an asylum. A fourth case illustrates a large class that are not understood. A business man living methodically, and in the best surroundings, using spirits on the table and at night, in comparative great moderation, suddenly finds that he cannot sleep well, and is filled with strong suspicions that he is being cheated. In a short time this passes away, but returns with greater intensity. A council of physicians advise travel and rest; from this he returns worse than before. Finally a pronounced delirium comes on, and he is sent to an insane asylum. He is discharged improved, but his mental health is permanently impaired. Had his physicians recognized this incipient delirium and its real cause,

alcohol, his recovery would have been permanent. A similar case was that of an office lawyer who lived an almost ideal life of regularity and quietness. From the advice of a friend he began to use spirits at meals and at bed-time. Two years later he had short periods of intense melancholy and fear of death. He thought his property was insecure and was filled with omens of coming disaster. A council of physicians advised travel and change, but his family physician, finding that he inherited an alcoholic taint, urged the giving up of all spirits. The latter council was taken and he recovered.

These strange, unrecognized deliriums appear in sudden changes of character and conduct, exhibiting strange instability of mind and purpose, and extreme credulity or skepticism. A man of excellent judgment will be duped by the most apparent frauds. He will exhibit confidence where he should not, and suspicion without any occasion. He will have impressive dreams and act upon them, become an investigator of spirit phenomena. Another class suddenly have political ambition for office, and, if wealthy, are the easy dupes of designing men. It may be safely said, that where a moderate (so-called) or excessive user of spirits, suddenly exhibits great changes of conduct, motive and character, he is laboring under a delirium. Such a case was that of a moderate drinking cattle dealer who willed all his property to the mission cause, and at his death two years after, it could not be shown that the man had any mental disturbance or conduct that denoted insanity. Yet this act was unusual and entirely inconsistent with his former views and conduct. A similar case was referred to me where a man who had been a planter and large owner of slaves, left all his property to found a college for colored students. He had been a moderate drinker, and at times after drinking had exhibited great eccentricities of conduct in many ways. He was a negro hater of the most pronounced type, and held tenaciously that the

negro was incapable of education, and would be injured by it. This doctrine he urged all his life. He died two weeks after the end of a quiet paroxysm of drinking. In my opinion this will was made in a state of marked delirium, although the lawyer and witnesses could not detect any abnormal mental state.

In some cases of delirium tremens, where the early history has been ascertained, the exact form and character of the delirium has been outlined long before. Thus the man who, after or during a drinking excess, has dreams of injury, and nightmares of some horrid object persecuting him, or who conceives that his best friends are plotting his ruin, will, by and by, suffer from a pronounced attack of delirium tremens. When these deliriums are only eccentricities of conduct, acts of unusual character and strange mental impulses, the same or worse stages of disease are sure to follow. As in sleep these obscure deliriums seem to unmask and reveal something of the degeneration going on in central brain regions. They may be traced in some cases to certain mental states and surroundings, whose impress had been fixed on the brain in the past. In the same way certain hereditary impulses are started into activity and grow up unexplainable, unless they are traced back to the ancestors. Often the strange hallucinations of sight and hearing, associated with delirium, have a physical causation that can be realized. Certain forms of alcoholic drinks seem to cause particular kinds of cell degenerations with special mental phenomena.

These and other facts are supported by clinical studies and the histories of cases. The practical fact most prominent is that delirium tremens, or any other form of delirium, will be literally unknown unless its etiology is studied with as much care as its symptomatology. Another fact appears that when it is ascertained the patient uses spirits, either in excess or moderation, all forms of brain and nerve perversions may be expected. Also states of altered conduct and character, of short

durations, are often masked deliriums and stages of disease, the study and treatment of which gives promise of success that grows less as the case goes on. A great deal is to be done in this field before all the facts and phenomena of delirium following the use of alcohol will be understood. The recognition of inebriety as a disease, and its transfer from the realm of morals and religion to that of medical and scientific investigation, will open the door into a new field of the greatest practical interest.

On the Use of Cocaine in the Opium Habit.

WITH A FEW PRELIMINARY REMARKS ON ITS PHYSIOLOGICAL PROPERTIES.

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THE most exhaustive and important researches, as to the action of cocaine, have been those made by Schroff, Fronmüller, Ploss, Moreno y Maiz, Bucheim and Eisenmenger, A. Bennet and Dr. Isaac Ott. The action and properties of erythroxylen coca by Drs. Unanue of Lima, Tchudy, Scherzer, Mantegazza, Demarlé, Moreno y Maiz and Dr. Isaac Ott. Owing to the politeness of my friend Dr. Ott, I have had access to the results of the work of the observers above named, as well as to his own experiments with cocaine, and am thus enabled to present them to this society as preliminary to my own results obtained from the use of this drug in the treatment of the opium habit, in neuralgia of the pelvic viscera in women and in sciatica.

The researches of Schroff showed that $\frac{5}{1000}$ gramme per oz. in the rabbit caused slight changes in the pulse and respiration, with transitory dilatation of the pupil, whilst the same dose, subcutaneously, killed the animal in twenty-eight minutes. Epileptiform convulsions and considerable mydriasis being present, the latter yielding immediately after death. On section, the whole venous system and the ventricles were distended with blood. There seemed to be an increase of the salivary secretion, whilst there was no change in regard to defecation and diuresis. Locally, cocaine contracted the pupil. Schroff's conclusion

was that cocaine, in small doses, increased the brain functions, later depressed them, causing sleep, and belonged to the narcotics of which *cannabis indica* is an example. Fronmüller experimented with six males and eight females, using cocaine in doses of from $\frac{3}{100}$ to $\frac{3.3}{100}$ gramme. In four only was complete sleep obtained, and in only a few cases were narcotic symptoms present with tinnitus aurium and vertigo. With doses of from $\frac{3}{100}$ to $\frac{6}{100}$ gramme, delirium, headache, restlessness, severe chill and weakness in extremities were added. The gastric system seemed to be more disturbed, as there was observed a bitter taste in the mouth, belching and vomiting. Defecation was not increased. Uninary secretion rather lessened than increased. Pulse and respiration in beginning somewhat accelerated. The axillary temperature depressed 0.1° - 0.4° and pupil dilated.

The conclusions of Moreno y Maiz, respecting cocaine as the result of experiments on frogs, was that the conducting power of the cord was not affected, but that the nerves were attacked, that the peripheral sensibility was acted upon, that it caused phenomena similar to those produced by strychnine, such as spontaneous tetanic convulsions on the least excitation. In feeble doses it caused a remarkable excitation of sensibility, dilating of pupil and diminution of movement. The animal seemed to lose co-ordinating power. That large doses produced a diminution, then abolition of sensation, without complete loss of motricity.

In A. Bennet's experiments with cocaine he observed the symptoms already detailed, and also observed that the posterior columns of the cord were insensible after death, that the temperature was at first diminished, then increased, and permanent congestion in the ear of the rabbit. Dr. Ott's conclusions, respecting the action on the nervous system from his experiments on frogs and guinea pigs, are that cocaine in small and large doses causes loss of co-ordination and decrease of motricity. It does not paralyze the anterior columns of the cord. Cocaine in

small doses exaggerates the sensibility which, upon the least irritation, throws the animal into general convulsions, whilst large doses abolish the functions of the posterior columns and the sensory nerves. Cocaine, when gradually introduced, kills by stoppage of respiration, but when large doses are thrown suddenly upon the heart, death takes place by respiratory and cardiac arrest. Cocaine always prolongs muscular contraction and it always dilates the pupils. The effect of cocaine on the circulation is to produce a fall of pulse and blood pressure succeeded by a rise of them. That the fall is not due to central irritation of the pneumogastrics, is proved by the fact that it takes place after their division. That it is not due to the irritation of peripheral ends of pneumogastrics, is shown by the previous paralysis of them by atropia and cocaine producing a fall.

Circulation.—Experiments show that cocaine acts on the heart itself, either its imbedded ganglia or the muscular structure. Whether the muscular structure or the contained ganglia is most affected it is difficult to determine. Experiments as to the action of cocaine on the respiratory system demonstrate that the action of cocaine is an excitant of the medulla, which passes into complete paralysis. Section of the pneumogastrics does not cause any alteration in the sequence of the respiratory changes induced by cocaine. Finally, the results of the experiments of Ott show that cocaine diminishes the excitability of the motor nerves and causes loss of co-ordination.

In small doses it increases the excitability of the sensory nerves and in large doses paralyzes them. It does not affect the conducting power of the anterior columns of the spinal cord, but seems to attack the posterior columns. Cocaine depresses the pulse and blood pressure momentarily, and afterwards increases them. This effect is produced by the action of the poison on the heart itself and the vaso-motor center. It does not paralyze either the sympathetic pneumogastric or

vaso-motor center. It acts as an excitant on the centers of respiration and afterwards depresses, or paralyzes them. The pupils are always dilated. It has an action like that of veratria on the striated muscle. It depresses and then increases the temperature.

On a warm afternoon last July, I commenced experiments on myself with a 4° solution of muriate of cocaine. I injected ten minims into the cellular tissue of the thigh and lay down to watch my sensations. I experienced an indefinable sensation, something analogous to that which would be produced by the hypodermic administration of $\frac{1}{120}$ grains of atropia, and a sense of refreshing coolness. There was a perceptible dryness of the mucous membrane of the mouth, and both physical and intellectual excitation. There was a pleasant sensation irradiated over the whole body. As the result of several such experiments, I should consider it an excitant producing exaltation of nerve force, showed by an increase of intellectual power, but I did not experience Schroff's symptoms of lassitude or depression of brain functions causing sleep. I should say, from my own experience, that cocaine in small doses was an excitant increasing the brain functions, later allowing them to drop back to the normal, and a dilatation of the pupil and increase of pulse and temperature.

Cocaine in the Opium Habit.—The following case illustrates perfectly all I would say of the use of cocaine in the treatment of the opium habit, and illustrates, graphically, the magical results from its hypodermic use to relieve the terrible muscular and nervous restlessness which is apt to appear, even under the most careful and judicious retrocessive plan of treatment, by which much suffering and nervous derangement is avoided. Cases that are at once cut off from opium are very apt to be a failure as regards treatment, and it is the height of cruelty to subject a patient to any such treatment. It is a matter of deep regret that the victims of opium inebriety are generally to be found in the higher and

more cultivated classes of the community. A great many professional and literary men and women, who have special demands made upon their nervous systems every year, become morphine habitues, probably commencing its use at first for some attack of illness or nervous prostration. Some day they find to their surprise that they cannot stop its use and they gradually increase the dose, not to obtain relief from pain, but to be freed from the torments to which they are subjected when deprived of the morphine or opium. It is simply impossible for a delicate nervous woman or man either to abandon this habit voluntarily, and even physicians cannot do it. The most intelligent people contract the opium habit in spite of their intelligence, their desire and their will; and many of them end as utter wrecks of mind and body. There is, in addition to degradation of moral feeling and of impotence of will, a physical deterioration of nerve element, for the opium enters the blood and is carried by it to the inmost minute recesses of the brain, and act there injuriously upon the elements of the exquisitely delicate structures. Its finest, latest organized and least stable parts, which subserve moral feeling and supreme will, are marred. To cure the opium habitue, he must be restrained forcibly from the insane impulse for a long enough time to allow the brain to get rid of the poison, and its tissues to recover their healthy tone.

I have noticed, in not a few cases, that the tissues had the congenital misfortune to begin with the original taint of a depraved tone. They have inherited the proclivity to seek for some stimulant. The craving, if once gratified, is readily led by gratification to an uncontrollable desire. I would urge upon the medical profession the great importance of the prompt withdrawal of the drug in every case of illness, just as soon as the therapeutic indications for its use have been fulfilled, and will also suggest, that for pain in the pelvic viscera in women, that atropia, hypodermically, in doses of from $\frac{1}{120}$ of a gr. to $\frac{1}{60}$

of a gr., will stop pelvic neuralgia quite as promptly as opium will. A great many women take a great deal of morphine and chloral to procure sleep, and become habit cases in this way. If sleep must be produced, we have a near and physiologically safe sleep producing agent in *paraldehyde*, which may be given in one drachm doses at bed time, in 1 oz. syr. orange, and 1 oz. of water at bed time. From its chemical nature, I do not believe that it can do harm, while its physical action in producing sleep is akin to chloral in certainty. There is no unpleasant reaction after it. I treat chloral cases by withdrawing chloral, giving paraldehyde for a few nights, and antagonize the effect of chloral on the nervous system by giving strychnia hypodermically, commencing with $\frac{1}{120}$ of a grain of the nitrate of strychnia, and gradually increasing it until the brain takes on healthy action.

The case alluded to was that of a gentleman aged forty years, of more than unusual culture and refinement, occupying a high position of trust and honor. At the time of coming under my care he was taking six grains of morphine per diem, and could not perform his daily duties without it. I reduced the amount one-half from the start. Gave Warburg's tincture in capsule at breakfast and put patient on a Bromide mixture, in gradually increasing doses, while the morphine was gradually reduced. The formula of this mixture is as follows:

℞ Sodii Bromid:

Am. Bromid.	āā ʒss
Pot. Bromid.	ʒi
Syr. Hypophosphite Comp.	ʒiij
Syr. Tolu	ʒi
Aqua Menth. Pip.	ʒiss
Liq. Pot. Arsenit	ʒi

M. Dose, from one teaspoonful upwards.

The physiological effect of this combination is reconstructive and at the same time sedative, and the

bromide cachexia is entirely avoided by the use of this mixture.

This treatment was pursued until on the tenth day the patient was taking one-sixth grain of morphia and the maximum of the bromide mixture. A great muscular and nervous restlessness now appeared. The patient applied to me at 10 p. m., complaining that he "could not sit still or lie still for a moment, much less sleep." I now administered 10 minims of a 4 per cent. solution muriate of cocaine made by Schiefflein. Before reaching his room he returned and knocked at my office door, saying that he wished to tell me that the nervousness and restlessness had entirely disappeared. He slept well. The next day hot baths, diuretics and iron and strychnia mixtures was begun to follow the bromides. Toward night the intense nervous restlessness came on, and as before, it was immediately relieved by the hypodermic of ten minims of cocaine, and uninterrupted sleep followed. The instantaneousness of the relief is something magical. The patient passes at once from a condition of great nervous restlessness into a condition of perfect comfort.

The treatment of the opium habit is rendered infinitely more pleasant to the patient by the use of cocaine, and I should now feel that I was deprived of a most important therapeutic aid, in the treatment of this disease, if I had to do without it. The case referred to made a perfect cure in five weeks, and resumed the position which he was before unfitted for.

I have also used hypodermics of cocaine in sciatica with perfect relief to the patient, making deep injections in the neighborhood of the sciatic nerve. In ovarian neuralgia I have also used it successfully, making the injections on the affected ovary.

I would caution the profession, first, not to tell the patient what they are giving; and second, not to continue the use of cocaine more than a very few days, as the patient gets to depend on it if administered for a length of time.

Clinical Lectures on Dipsomania.*

DELIVERED AT THE ASYLUM OF ST. ANNE.

By M. le DR. M. V. MAGNAN.

LECTURE III.

VARIOUS IMPULSIVE STATES OCCURRING IN DIPSOMANIA.

SUMMARY.—In the dipsomaniac, besides the drinking frenzy various other impulses and overwhelming ideas may manifest themselves.

CASE V.—Suicidal impulse prior to the impulse to drink; delusions of persecution. Ambitious ideas. Hallucinations differing in character with the side affected. Duration of the attack of dipsomania from two to five days. Length of interval between attacks from a few days to several months, and occasionally as many years. Rapidly succeeding attacks of dipsomania lead to delirium tremens.

CASE VI —Suicidal impulse preceding the drinking impulse.

CASE VII.—Intervals of eight and fifteen months between the attacks. Suicidal attempt.

CASE VIII.—Shame and remorse following the attack. P— commits theft in order to be arrested and thus kept from drinking.

GENTLEMEN:—The sense of humiliation and the exhaustion which the victims of dipsomania experience on the subsidence of the toxic symptoms are essentially different from the melancholic phase which ushers in the attack. The prostration which overcomes them is, to some extent, the result of the mental and bodily fatigue they have undergone, but it is chiefly due to their remorse and despair at having fallen back into their old excesses. This impels them to desperate acts which are frequently fatal ones. It is in this way that suicidal impulses come to be added to the impulse to drink. Some patients are so persistent and determined in their attempts that we can often predict with confi-

* Translated by H. R. STEDMAN, M. D., Boston, Mass.

dence that they will, sooner or later, accomplish their purpose. Sometimes, also, homicidal impulses occur as complications and render these patients exceedingly dangerous. You will be more forcibly impressed with the fact of the tendency in dipsomaniacs to manifest all sorts of impulses, by examining with me the case of a patient who is subject to suicidal impulses of the most persistent kind.

Louis H—— is a sculptor, 35 years of age. His father was a drunkard with suicidal tendencies, and his mother an hysteric, who, in the patient's presence, had on one occasion, after being crossed in some way, a convulsive seizure followed by delirium with extravagant and vulgar talk. The patient has naturally a sad disposition aggravated by the mortifying fear that he is an illegitimate child. He does not know what will be the end of this state of things, as he has been haunted for several years past by suicidal ideas.

He began early to drink intoxicating liquors to excess, but has noticed that he has drunk deepest when his melancholy thoughts have been uppermost. In this way—by the morbid state in which he finds himself periodically—he accounts for his attempts at suicide, of which the following are the principal ones :

In 1869, while in garrison at Lyons, worn out by military service and unable to throw off a feeling of insupportable ennui, Louis felt impelled to drink, and in two days consumed a large quantity of absinthe. Not daring to return to the barracks, he threw himself into the Saône. He was rescued by two comrades who had followed him.

In 1871, after a disappointment in regard to a marriage he had long contemplated, he had another attack of depression which drove him to drinking bitters, of which he consumed large quantities in three or four days. Shortly afterward, in his despair, he hanged himself before the door of the young woman to whom he had been betrothed, but was cut down by some one who

happened at hand. Four years later, under the influence of a return of the impulse to drink, and after a debauch of three days, he lighted a charcoal fire in his bedroom, after hermetically sealing all the apertures, and attempted to asphyxiate himself. But, happening to turn in bed, he rolled out on to the floor, and the noise of the fall alarmed the other occupants of the house, who forced an entrance in time for him to revive. In 1876 he was frustrated by passers-by in an attempt to scale the parapet of the Austerlitz bridge. In the year following, while tormented by the same suicidal thoughts, he began to drink without feeling any impulse so to do, but in order to give himself courage to resist. As a result of this step, he went to a bathing establishment with the intention of opening a vein while in the bath. The attendant, however, struck by his wild look, interfered in time to prevent him from carrying out his purpose. On another occasion he attempted to poison himself by taking a mixture of camphorated alcohol, sulphate of zinc, kitchen salt and tar water, but his stomach rejected it almost immediately. The next day one of his dipsomaniacal attacks came on and he drank heavily for six days. Soon after this he made another attempt at suicide by drinking ammonia water. No serious result followed however, as the solution was a weak one, and its disagreeable pungency prevented him from taking a large quantity.

These facts are sufficient to prove his melancholy tendency. For several years past his health, apart from his attacks, has been poor, and he takes wine soup in the morning sometimes, because that nourishment is the easiest for him to prepare. But, from time to time, once or twice a month, he feels more depressed, debased and discouraged than usual. He loses his appetite, complains of pain, and a sense of constriction at the stomach. It seems to him as though his head would burst. His sight troubles him. He sees as if through a cloud. Then, feeling impelled to drink, he tries at first to resist, and

struggles for some hours, but ends by leaving the workshop by himself, under some pretext, and going to the wine sellers to take his first glass of wine. He soon returns to his work, but goes out a minute or two later and drinks another glass, then two, then three, etc., at last, towards evening, he buys some brandy, which he takes to his bedroom and places on the table to drink in bed during the night. This, then, is a genuine attack of dipsomania. The following night is always bad, the little sleep the patient has being troubled with nightmare and hallucinations more or less terrifying. The two following days he remains in bed without eating or drinking. The third day he rises, takes a walk, has his breakfast, and returns to work and his ordinary habits. Besides the outbursts of alcoholic delirium caused by excessive drinking, Louis has ideas of persecution. He often believes that he is followed in the street by people who threaten to cut him with knives. Sometimes, too, he hears in the left ear abuse and threats: "You are nothing but a thief, come here you rascal that I may strike you," etc. By the right ear, on the contrary, none but agreeable things reach him. He is praised and encouraged. He hears a woman calling him affectionately "my beloved." The false sounds, heard by the left ear, are the more frequent.

Finally, I would point out to you a very serious circumstance which renders this patient dangerous to others. He has been tormented for three years past by a voice which impels him to strike somebody. He is so fearful of yielding to this temptation, as he has yielded to others, that he never dares to touch a knife, and even the sight of one gives him an uncomfortable feeling. The agony of the unfortunate man is vividly described in the following letter to his sister, which bears the stamp of perfect sincerity:

MY DEAR SISTER:—I am very much surprised that you have not replied to my letter asking for father's address. Now that I am in so much trouble and have

the greatest need of consolation you fail me. I have a secret to confess to you which has been the cause of my sickness and which has led me to take to drink, when I might have led a happy life with the money I had earned. But fate was against it. My dear sister, perhaps it is not a secret to all of you, but, twenty years ago, while at work one day, father struck me, and on that day, which I shall remember all my life, he told me that he was not my father. Since then a cloud has settled upon me which I cannot get rid of. It has overcast, with gloom, my whole existence. I no longer live. I constantly beg Heaven for relief, or to be called home to another and better world for I cannot endure such a life.

How I wish that my father would write to me. He alone can console me. He could, perhaps, drive from me the thought which always haunts me and which he put into my mind. I was always amiable and mother always said I had the best of hearts. Now my heart suffers more and more. It is that which drives me to drink which I take not from any love of liquor, but in order to drive away the thought which haunts me. Sometimes, when I am more sad than usual, I drink the more deeply, but without power to stop. Then I do not know what urges me on.

Pardon me for the trouble I cause you. I cannot write to you without trembling, when I tell you, my sister, that I love you as a brother should, and that I long to be released from the tormenting thought which causes all my trouble, to be near you all and weep at my ease. For what makes me suffer is that I am unable to weep, my heart is too heavy. But I will not annoy you any longer with my troubles, I will suffer to the end. If the Prussians had only taken my life! But alas! they would have none of me. I see that I was born to suffer.

I beg that you will burn my letter as soon as you have read it. Write me often and give me father's address. Give my regards to Victor and ask him to forgive me; he saw, quite well, that I was deranged when he came to Paris. I pray you ask him to write to me, it will give me much pleasure. I have need of all of you to save me, for without that I am no longer a man, but only a worthless thing. Give my regards to B., but don't tell him how I am situated, and also remember me to the rest of the family.

Your brother, who loves you all and whom the family always neglect, but you least of all.

LOUIS H.

Among the numerous attempts at suicide by this patient, there are several, which, besides those due to predisposition, appear to have been provoked by grief and regret at having committed excesses.

It is not possible to demonstrate more clearly how far the dipsomaniac is separated from the drunkard, who generally regrets so little his excesses in drinking.

If all dipsomaniacs do not attempt their lives, they certainly all manifest in one way or another how much they are ashamed of their passion. Louise B., whom we have seen, welcomes, in her moments of repentance, all the schemes suggested by her family to second her efforts. She submits to surveillance, takes up work in a shop, continuing steadily at her duties during the interval between her attacks, and goes later to a neighboring physician in search of the protection of which she feels the need. Another woman, whom we shall see, has on several occasions left behind in the house where she has been employed as a servant her trunk containing all she possessed, rather than appear before her master in a state of intoxication. She even accuses herself of thefts she has never committed in order to bring about her arrest and consequent close supervision.

The duration of the attack is very variable. It may extend from two to fifteen days. Recurrence is not subject to any rule, although it may be said, that in general, the attacks are infrequent at first (one or two in the year), recur gradually at shorter intervals and finally become so frequent that only a few days may intervene between them. One patient remains at the outset for several months without committing any excess, but later the relapse returns every thirty or forty days. It is the same with another who had impulses every month while living away from the asylum. A woman we are soon to examine, after having remained sober for more than a

year, now takes to drink every two months; some do not yield to the impulse more than once a year.

Dipsomania and Delirium Tremens.—Too much stress has been laid upon the power of the dipsomaniac to resist the action of alcohol. However that may be, alcoholic excesses, when the amount taken is sufficient, will sooner or later develop in the dipsomaniac as in any other person a toxic delirium of varied duration. None of the patients that we have seen, or are to see, have escaped it, and we may say that delirium has been the principal cause of their admission to the asylum. Intoxication, which in the first instance is the sole accompaniment of the seizure, leaves at first no traces of its presence, but later, when the attacks come close together and the alcohol acts more continuously, hallucinations and delirium develop in their turn, and in dipsomania as in other forms of mental disorder, alcohol, after having played the role of a stimulant, gives rise to a special delirium, so marked, that the dipsomaniac presents himself at the asylum with delirium tremens, but it is not until after the disappearance of the acute symptoms that the underlying disease is discovered. However doubtful this may seem, there are examples of the co-existence in the same subject of two different states, dipsomania and alcoholic delirium, of which one is the cause of the other.*

In this connection the following case is most instructive. The patient D—., aged fifty-seven years, shirt-maker, was admitted at Saint Anne's, October 10th, 1869, with the following medical certificate: Alcoholism, terrible hallucinations, great distress, insomnia.

On admission D. was agitated and frightened, talking and crying by turns. She heard assassins threatening to attack her, she saw by her side the heads of panting victims, she thought she was covered with vermin and shook her clothing. She heard the voices of her parents and

* Magnan.—De la Co-existence de Plusieurs Délires de Nature Différente chez le Même Aliéné. Archives de Neurologie, 1880, page 57.

the sounds of knocking all around her, etc. Hands trembling, tongue white, and epigastric region painful. She was sleepless and had incessant hallucinations. At the end of five days the delirium disappeared, leaving the patient melancholy and dejected, but she is now quiet and amuses herself during the day. Her sleep is still poor and disturbed by nightmare.

Let us now look at her previous history. For thirty years past the patient has found herself at certain periods feeling depressed and unable to interest herself in anything. She has been at these times weak and unable to work and has slept badly. She has no appetite and suffers from a stomach trouble, which the sight of food increases. A devouring thirst then comes on and she begins immediately to drink wine. The next day she takes a bottle home with her, hides it while going down stairs, gets it filled at the wine sellers and quickly re-enters her house. She then shuts herself in and drinks until she falls to the floor. From the time the intoxication passes off, she drinks greedily and for several days. After the attack she reproaches herself, is horrified at the thought of what she has done and returns to her regular life and to habits of sobriety. These attacks occurred at first at intervals of from fifteen to eighteen months. They now come closer together and not more than three or four months intervene. Twenty years ago this patient attempted to drown herself in the canal Saint Martin, at the beginning of one of these attacks of dipsomania.

For some time during the period when the attacks of dipsomania were separated by intervals of eighteen months, intoxication was the only accompaniment of her dipsomaniacal seizures; later, when they recurred more frequently and the 'alcohol acted more continuously, hallucinations and delirium were developed in their turn.*

Hortense B——, that I now bring before you, is a

Magnan.—*De l'Alcoolisme des Diverses Formes des Délire Alcoolique, et de leur Traitement.* Paris, 1874; page 257.

shoemaker by trade. She is 53 years old. Her father committed suicide by throwing himself into a pond.

She claims to have lived to the age of 40 years without having drunk to excess. At 28 years of age, she was left a widow after eight years of married life. From 21 to 27 years of age she remembers having suffered intermittent attacks of gastralgia followed by vomiting. When 31 years old she married again. At about this time also, she had money losses which gave her much trouble and anxiety.

In 1869, she drank from time to time when invited to do so, or when she went to sell her boots and shoes, and consequently was occasionally intoxicated. It was not until the month of February, 1871, during the siege of Paris, that her trouble appeared sufficiently serious to attract her attention. She then experienced pains in the head and stomach and felt a pressure upon the back and epigastrium, "as if some one was forcing the fists into them." Food was repugnant, and her sleep was disturbed, etc. Her moral state corresponded with her physical condition, showing discouragement, inquietude and melancholy. She had extravagant notions; imagining for example, that her husband was implicated in the affairs of the commune and was compromised on her account. Everything wearied her; her temper was irritable, and the idea of death which she viewed as a happy deliverance, haunted her continually. While in this state, she felt for the first time an irresistible desire to drink; she first drank wine and then brandy, "without being able to quench her thirst." The consequences of these excesses were not long in showing themselves, and at the end of a few days she had an attack of delirium tremens, with hallucinations of sight and hearing. The most terrible scenes of the commune were visible to her. She saw corpses, shadows and figures. She heard the rattle of musketry. Now and then, also, it seemed to her that all the people in the street were looking at her and abusing her. Life became

insupportable to her, and it was after an attempt at suicide by the fumes of charcoal that she was taken to Saint Anne's, the 20th January, 1872, laboring under violent toxic delirium. Sent thence to the Salpêtrière, she was set at liberty after three months' detention.

She then returned to work and remained sober for about fourteen months. But, soon (in July) being seized with an attack of melancholy similar to the preceding one, she drank deeply for several days and was sent back to Saint Anne's with alcoholic delirium. After several weeks' rest there, she was chiefly troubled with melancholy thoughts without hallucinations, though she always showed a marked tendency to suicide.

When she was released from the asylum, she had eight months' respite, but the arrest of her husband plunged her into deep melancholy; she felt herself forced to drink, and after a debauch of several days she was again seized with delirium tremens. In her hallucination she saw a butcher armed with a knife who wished to cut her to pieces, grimacing faces, and police mocking her and accusing her of murder. One evening she even made a complaint to the commissary of police, that some one had killed the daughter of the janitor in her house. After being again sent to Saint Anne's on the 14th of August, 1874, she was transferred to the Salpêtrière, where she remained ten months. She was able later to resume her ordinary occupations, and in the four subsequent years she remained during periods of six, eight and fifteen months without having attacks of melancholy or irresistible impulse. When these supervened they were accompanied by the same feelings of weakness and pain as before. The abuse of drink, although it was less excessive, fatigued the patient and excited vomiting, which was quite persistent.

On the 14th day of October, 1878, Hortense was taken for the fourth time to Saint Anne's with alcoholic delirium. She improved rapidly, and at the end of two months was well enough to be sent back to her

husband. She was taken into the country, where she spent several weeks quietly, but on her return in January, 1879, she had another attack of melancholy. She fought against the impulse this time for more than a month, but ended by yielding to it. The alcoholic delirium which followed resulted in an attempt at suicide. She tried to poison herself with laudanum to free herself from the enemies who threatened her. A voice which reviled her without ceasing told her to kill herself.

When taken to the Asylum for the 5th time, the patient was under the influence of delirium tremens with painful hallucinations. In the night she heard her mother, who had been dead some time, reproaching her for her conduct, and crying to her, "Come with me, and you will be happier." By the side of her mother, who was clothed entirely in black, she saw a rock covered with frogs. After some days of medical treatment her condition was again improved. She is now ashamed of her conduct and very much depressed; she explains her sensations very well. She states that before being driven to drink she has a period of lassitude and weakness, and lacks courage to attend to her household duties. It then seems to her that if she drinks she will be better. Brandy is distasteful to her and "burns her stomach," but she cannot refrain from drinking the first glass. After this her will is impotent, she can no longer fight against her impulses and she drinks till she is completely intoxicated. Notwithstanding a sensible amelioration, she is sometimes troubled in her sleep with hallucinations she is setting fires and sees sparks all about her. It is to be feared that similar hallucinations will remain still longer as they do with ordinary drinkers when their intoxication has become habitual.

Besides their impulsive periods, dipsomaniacs behave sometimes like genuine drunkards and break down in health. When this is the case repeated excesses may end by provoking symptoms of chronic alcoholism. But it is always easy to find out if the person drinks from

impulse, or from drunken habits. When he drinks from ennui and for simple distraction he conducts himself like an ordinary drunkard and tries to induce his friends to drink with him; when, on the contrary he is prompted to drink by his malady, he secludes himself from his neighbors, hides himself, takes his wine into his room and swallows glass after glass, after having taken the precaution to lock himself in. Moreover the impulse to drink is always preceded by a phase of melancholy.

The majority of these patients are strictly sober in the intervals of their attacks, and as we have seen, some of them cannot even bare the smell of alcoholic drinks. When repentance and remorse do not drive them to suicide they make efforts to lead a regular life, and each time are confident that they will not relapse. This conviction is most sincere for they manifest it in every way. The last patient that we shall see, wrote with her own blood a promise to refrain from drink. She deplored her wretched state in terms too full of repentance and thorough sincerity to be forgotten.

Pauline H——, servant, is 52 years old. Her father was an habitual drunkard. She, herself, commenced to give way to drink from the age of 26. At first she would only drink at long intervals and under the influence of passing impulses, and at that time would remain for whole months without committing any excess. Little by little the attacks came closer together, and though she understood perfectly the deplorable consequences of her intemperance and reproached herself for it, she invariably yielded to her desire. Always fearful and ashamed to be seen, she would buy brandy secretly and drink it alone in her chamber. When caught in a state of intoxication, her distress was so great that she would leave the house in which she was employed, and frequently, not daring to present herself there, would prefer to abandon all her belongings.

At last, she found herself without a situation and fell into great misery. Having no shelter, she pretended to

have stolen a basket of strawberries from the market with the express intention of bringing about her arrest. For this she suffered two months' detention in Saint Lazare. When she was released, finding herself in the same situation and not knowing what would become of her, she said she had stolen a pair of shoes, in order that she might be arrested again. She was sentenced to six months' imprisonment which she again passed in Saint Lazare. She affirms that, in these two cases, she acted with premeditated design and knew what she was doing. Notwithstanding this, it is possible, after all, that these two steps were only the result of an impulse that she could not repress.

Pauline was admitted to Saint Anne's for the first time in 1873, at the age of 43. She had been arrested for assaulting police officers. During an attack of delirium tremens she imagined that they had made indecent proposals to her and were following her. On her admission to the asylum, she was under the influence of terrifying hallucinations. She saw cats, tigers, serpents with flaming eyes who darted at her breast, and owls constantly staring at her, she also heard voices cursing her and accusing her of being a petroleuse. In addition she had tremor of the hands, headache, cramps in her limbs, and was troubled with vomiting of mucus. After a long stay she was set at liberty.

In 1877, she was admitted for the second time to Saint Anne's with an attack of delirium tremens with distressing hallucinations. She believed she was an accomplice in thefts, she saw murderers attacking her brothers, houses on fire filled with burning corpses, and ferocious beasts coming to devour her. She was sent to the Salpêtrière where she remained nine months.

Fifteen days after her release she was taken back to Saint Anne's for the third time. After eight months' treatment, she left at the commencement of October, 1878.

Again free, she was once more tempted notwithstand-

ing her very sincere promise not to drink alcohol, and the formal protestations which she addressed to me in this letter :

SUNDAY, 2 P. M.

SIR:—I am so ashamed of being here for a vice so disgraceful and degrading, that when you come to see me I cannot find words to speak to you; however, sir, the kindness with which you have treated me, makes it my duty to speak to you frankly. You have asked me, Doctor, what I mean to do when I leave Saint Anne's. I have deeply reflected. The world has no longer any attraction for me. Here, I see every day so much devotion to the sick, that I wish I might be employed in relieving their sufferings, and I would see all the hospitals, no matter in what capacity. In that way, I should, at least, be shielded from all relapses.

Do not think, sir, that I am lost to all good feeling! Oh no, sir! I would escape from the disgrace which has come upon me, and take all proper means to resist that unfortunate passion which *suddenly* attacks me.

I shall always feel towards you the deepest gratitude for your kind care, and promise you now to fly from this ignoble and degrading vice which I cannot think of without blushing, a vice which is the cause of my estrangement from my family, and those who surrounded me with their affection and esteem. Yes, sir, I will return worthy of my family and take up the life which I should never have quitted. But I assure you that it has not been my fault.

With that interest which you take in your patients you will, without doubt, ask what means I have.

The Sisters have been kind enough to give me employment in ironing for the last four months, so that I shall have a few savings that will suffice for my immediate wants.

Please accept, Doctor, my respectful thanks and remembrances.

PAULINA H—.

Her discharge was signed. But a very few days later, she procured brandy and recommenced her own destruction. Occasionally she returns to herself, reproaching herself and striving with all her will to get free from this unfortunate impulse. She was arrested in Notre Dame

des Victories, which she had entered, she said, in order to pray Heaven to deliver her from these fatal habits. But already, after several days, she sees animals and assassins, and hears the voice of the Doctor every where saying to her, "Pauline, to Saint Anne's."

At her last admission she again had delirium tremens, with hallucinations. She saw Saint Joseph sick, and ran in all directions to find him a physician. Black beasts terrified her.* She saw dogs, serpents and reptiles carrying grass in their mouths. At the same time she heard threatening voices which abused her and told her of the death of her parents. Tremor of the hands, which has not quite disappeared, predominates on the left side. She is still troubled with the vomiting of mucus in the morning.

For some time past she has slept well and her general health has improved. The patient employs herself in a regular way, and may later be restored to liberty. She promises, as usual, in the most earnest manner, to have more strength and courage to resist temptation. But knowing that her impulses are independent of her will, we shall not be surprised to see her return.

* On another occasion her hallucinatory delirium manifested itself in an analogous form: During the time she was living at home, she came to the Asylum to beg me to go with her to see Saint Joseph, whom she had seen vomiting in his bed.

On the Relations Existing Between the Digestive System and the Brain.

By EDWARD C. MANN, M. D., New York,

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THERE is a very intimate connection existing between a man's stomach and bowels and his brain. Neurologists are rather apt to attribute all nervous symptoms directly to disease of the brain or spinal cord, and to apply remedies with this in view. There is a very common condition of depression consisting of a peculiar form of melancholia, the patient's thoughts being only of his bodily ailments. The patient is constantly feeling his stomach and pulse. He broods over his own ailments, but this condition I generally find will disappear on the cure of a gastric catarrh that is present with these symptoms. When we find a patient suffering in this manner, it is safe to suspect that there is something wrong in his abdominal viscera. We shall observe, if the disease has lasted for some time, that the nutrition of the patient has suffered. The fat has disappeared, the muscles have become relaxed, the skin is dry, there is burning in the palm of the hands and the nervous system is, as we have seen, markedly involved. We find simple congestion or chronic congestion of the stomach, with secretion becoming less active and digestion becoming defective. Slowness of the blood current, in any organ of the body, always lessens the nutritive processes. It lessens the supply of oxygen, and we have passive hyperæmia of the organ so affected. It is decidedly rare to find any acute idiopathic inflammation of the stomach or idiopathic gastritis, so we can leave this out of the question in our patients, unless we have reason to think that they have been taking some corrosive poison. We shall find, rather frequently, how-

ever, that our patient's nervous condition depends upon a subacute inflammatory process or gastric catarrh, or inflammatory dyspepsia. We might confound gastralgia with gastritis, but there are marked points of distinction.

The pain in gastralgia comes in paroxysms generally, there is no vomiting, or very rarely, and there is absence of pain on pressure. The condition of subacute inflammation of the stomach, chronic gastritis or gastric catarrh, which gives rise to the nervous symptoms of depression and melancholia before referred to, differs entirely from the functional varieties of dyspepsia.

Gastric catarrh or inflammatory dyspepsia is an organic, not a functional disease of the stomach. The pathology of this condition is as follows: The mucous membrane becomes more or less opaque and thicker than natural, and it is changed in its color. It is brown, black or gray, due to pigmentary changes which take place in the coats of the stomach. The surface of the mucous membrane may present a mamillated appearance. The tubes become changed; they are less straight and less parallel than in the normal mucous membrane; under the microscope they look mixed up. The stomach often appears fatty and granular owing to the structural trouble. The mouths of the tubes become glued up, as it were, and little cysts form at the bottom of them.

Sometimes solitary glands become enlarged and waste away. Associated with this chronic structural change of the mucous membrane of the stomach, of our nervous invalid, we may find granular kidney. In simple nervous dyspepsia we find no distinct structural change, as in gastric catarrh. We have a loss of power in the muscular coats of the stomach in gastric catarrh. The condition of gastric catarrh consists of engorgement of the mucous membrane, with a copious generation of young cells, abnormal selections and increased detachment of epithelium. The cause of gastric catarrh, or inflammatory dyspepsia, is a diminution of the gastric juice which favors decomposition of the food taken into the stomach. If

there is more food taken into the stomach than there is gastric juice to dissolve it, there will be decomposition and fermentation set up. This induces hyperæmia and an abundant flow of mucus, which neutralizes what little gastric juice there is present. There is no use in feeding any patient beyond his power of assimilation. The secretion of gastric juice is very much under the influence of the nervous system and depressing emotions caused by business reverses, or domestic trouble and grief, often is the starting point of a diminution of the gastric juice which eventuates in gastric catarrh, and the secondary state of depression and melancholia, referred to in the beginning of this paper. Causes also exist in the stomach itself. Large quantities of easily digested food may cause trouble, if there is not sufficient gastric juice to digest it, and small quantities of food, which from its nature is not easily digested, may produce irritation and hyperæmia. Anything that has commenced to decompose before taken into the stomach may produce a like result. There is a physiological hyperæmia produced by food in the stomach, but I refer only to morbid hyperæmia. One of the most common causes of morbid hyperæmia of the stomach is the habitual use of alcohol, especially on an empty stomach or in the morning. It should be a rule to discover whether patient had any liver, heart or circulatory trouble. An obstruction in the portal vein may keep the stomach in a constant state of hyperæmia.

The symptoms of gastric catarrh, or inflammatory dyspepsia, causing melancholia, are very similar to those of ordinary indigestion. There is loss of appetite, sense of weight and fullness in the region of the stomach, perhaps vomiting, and a generally perverted condition of the gastric secretion. It now becomes necessary to make a diagnosis between gastric catarrh or inflammatory dyspepsia, and ordinary nervous dyspepsia. The patient suffering from gastric catarrh has probably had the disease a long time. The symptoms are never absent, but are permanent. Permanence of the symptoms distinguishes chronic indigestion

from functional indigestion. In gastric catarrh the patient suffers from distress soon after eating. In functional disorder the patient often feels better after taking food. Functional difficulty is often relieved by stimulants, while in structural trouble the stimulants burn the stomach at once. In structural trouble the pain is relieved when the stomach is empty; in functional dyspepsia the stomach feels worse when it is empty. In gastric catarrh the smallest piece of bread will often cause severe pain.

The tongue in gastric catarrh is broad, flabby, and has an unpleasant odor. The condition of catarrh may extend to the upper part of the small intestine.

We may see a gastric duodenitis. This may extend up into the bile ducts and produce bilious disorders. The inflammation in gastric catarrh may extend to other viscera, and the liver, kidneys and spleen may become involved. Stricture at the pyloric orifice may occur from simple hypertrophy of the mucous membrane. Should this occur, there will be great distension of the stomach with vomiting. Gastric catarrh is very often overlooked and treated merely as a functional derangement of the stomach, and it is very important not to make any such mistake.

In the treatment of gastric catarrh we must give the stomach rest. The less medicine the better for the patient; harsh purgatives should never be given. All starchy and farinaceous food must be omitted. Tender brown meats, that are thoroughly masticated and taken in moderate quantities, will be the most beneficial. Aside from a meat diet, an exclusively milk diet is good with lime water to drink with a little salt in it. Keep the patient on this diet for three weeks, after which stale bread, eggs, soft boiled rice, mutton chops, etc., may be given. Fresh buttermilk is an admirable drink for these patients. If there is tenderness over the epigastrium, heat may be applied, and if it continues, counter irritation in the form of a few small blisters may be required. Keep the bowels open by enemas of warm water and soap suds. As to medicines, the alkaline carbonates lessen

the toughness of the mucous membrane. The bi-carbonate of soda or phosphate of soda is excellent. We may give 10 grs. of bi-carbonate of soda in a half tumbler of water, putting in a pinch of chloride of sodium. Give this half an hour before breakfast and other meals. This increases the secretion of the gastric juice. Or we may use the natural alkaline water before meals. In patients of full habit, I have found it excellent practice to give a teaspoonful of epsom salts in half a tumbler of water with a little salt in it every morning, for several days, or a week or two. When the bowels are constipated give warm enemas and not cathartics. There is one very valuable remedy for atony of the mucous membrane of the stomach, ipecac. Given in small doses it has a very beneficial effect in this disease. From one to three drops of the tincture will often result in rapid pouring out of healthy gastric juice. The sub-nitrate of bismuth has an excellent local sedative effect, and small doses of morphia may be combined with it, if thought desirable. After the inflammation has ceased, we may put the patient on an improved diet and tonics. A little nux vomica with hydrochloric acid is an excellent tonic. One drop of Fowler's solution is often of great benefit in gastric catarrh which results from alcohol, where the patient has morning sickness. This should be given before meals. The great majority of patients with gastric catarrh are drugged too much, and no due attention paid to proper diet. Mental troubles and distress are very apt to produce atonic dyspepsia or functional trouble, but very rarely operate in the production of true structural troubles as we have seen, except, perhaps, in the first link of the chain by arresting the flow of gastric juice. On general principles, a cheerful state is decidedly favorable to the gastric secretion and vice-versa. If the secretions of the liver are perverted, we may also find patients mentally despondent, with dull pain over the right hypochondriac region. In these cases we must regulate the food and give saline purgatives in the morning.

A large number of cases of hypochondriasis we shall find associated with duodenal or intestinal dyspepsia. This is manifested by a sense of weight and uneasiness, not unfrequently felt, in the right hypochondriac region. The disturbance is felt some time after eating food. The duodenum and liver are involved. The most common cause of this is in the inability of the stomach to bring about the requisite changes in the food, so that the food pouring into the duodenum is unfit for digestion in the duodenum. This produces irritation, and this irritation is transmitted to the liver. This form of dyspepsia and the resulting hypochondriasis demand a special line of treatment. Small doses of hydrargyrum with small doses of ipecac in the morning is, I think, the best treatment. Horseback riding is good for these patients. Continual exercises of the brain in brain-workers brings about indigestion very frequently, and rest and recreation is what this class of nervous invalids need. Finally, in women who are nervous invalids, I often find that disorders of the sexual system, uterus and ovaries, produces disorders of the stomach through the nervous system, which disappear when the chronic affection of the uterus is cured. We should see that our patient has no bad teeth. The stomach should never be filled to an uneasy sense of repletion. There should be no exercise taken immediately after a meal. There should be certain hours intervening between meals. If certain food does not agree with a patient, he must avoid its use. Patients should be kept well nourished, and not kept on a low weak diet.

The Armstrong Case.*

By THEO. W. FISHER, M. D., Boston, Mass.

THE legal inquiry into the mental condition of the widow of Gov. Armstrong was one of the most interesting events in the recent history of medical jurisprudence in this State. The formerly high social position of Mrs. Armstrong, her husband's fame as ex-Mayor of Boston, and ex-Governor of Massachusetts, in those elder days when high office implied high honor; the amount of money involved; the amount alienated from its natural line of descent into the hands of her business adviser; and the array of eminent legal talent on both sides, made the case memorable from many points of view.

The case was not a contest to set aside her will, as no will was ever executed, though the subject was often considered and several drafts made. It was a bill in equity, brought by A. S. Wheeler, Esq., Administrator, against Mrs. Armstrong's former business adviser and agent, to recover \$350,000 paid him, by her, during the last ten years of her life. The money was given secretly, her agent accounting each year for his collections of income and payments on her account, and receiving the balance as a present, with a receipt in full, dictated by Mrs. A. and signed by her. The case was tried in September and October, 1883, the trial lasting three weeks, before Justice Wm. Allen, of the Supreme Court; Wm. G. Russell, R. M. Morse and W. W. Vaughn, for the plaintiff, and E. R. Hoar, Wm. Gaston and Aug. Russ, for the defendant.

Gov. Armstrong died in 1850, childless, leaving an estate of \$150,000 to his widow, advising her in his will to keep up the style of living to which they had been

*Read before the New England Psychological Society, Sept. 10th, 1885.

accustomed. His estate was chiefly real estate in the heart of Boston, destined to increase largely and rapidly in value. In earlier life he had been a well-known book publisher, and having made money in certain copyrights of books, once to be found in every pious New England family, he sold out to his successors, Crocker and Brewster. They continued the sale of the "Church Psalmody," "Watt's Entire" and "Scott's Commentaries," and likewise prospered

In 1812, Gov. Armstrong married Miss Abigail Walker, sister of the late Dr. William Walker of Charlestown. It was said to have been a love match, she being but eighteen years of age. They lived frugally at the West End, boarding some of Mr. A's apprentices as the custom was. Messrs. Crocker and Brewster, then "two raw boys from the Cape" as she called them, now aged and respected citizens, were personally cared for by Mrs. A. Ten years after their marriage, in 1822, they spent a year traveling in Europe. Mrs. Armstrong was presented at the French and English Courts and made the acquaintance of Miss Hannah More, and other distinguished persons of that day. In 1845 and 1846, they repeated their visit to Europe, spending two years in travel. Mr. Armstrong added to his other titles of distinction that of Deacon of the Old South Church. He lived in good style, however; gave parties, kept a carriage and male servants up to his death.

Mrs. Armstrong is said to have been her husband's equal in every respect. She is described as of medium height, erect carriage, graceful deportment and some beauty; intelligent and vivacious in conversation, elegantly dressed and fond of style and display up to the time of her husband's death. Although greatly distressed by this event, she continued to maintain her social position upon a modified scale up to 1865, when she was seventy-one years old. Out of respect to her husband she preserved his desk, clothing and the furniture and pictures, of the room in which he died, intact, frequently exhibiting

them to callers. She continued to live until her own death, in her house on Beacon St., opposite the Common, the iron fence of which Gov. Armstrong had been largely instrumental in having built.

For a year or two after her husband's death, her business affairs had been managed by Mr. Crocker, Gov. Armstrong's former partner. She then took charge of them herself, soon after commencing a suit against Crocker and Brewster for payment of certain copyrights, which suit she lost. She collected her rents herself, employing Mr. J. who was her tenant, and of whom she bought her provisions, to collect in some cases of refusal to pay. About the year 1865, when she was seventy-one years old, a decided change occurred in her mode of life. She gave up her carriage but retained a horse, with which Mr. J., in his own carry-all, used to drive her about, on business or pleasure. He also used to call on her almost daily, and she grew to depend more and more on his advice and assistance. No bargain was made by which he was to be paid, but, as he testified, she promised to reward him liberally, sooner or later.

For some unexplained reason, from 1865 to 1871, when she was seventy-seven years old, she lived absolutely alone. With exceptions of a few weeks only, she had no servants, did all her own work of the most menial kind, such as building fires, washing her clothing as well as the front steps, attending her own door and cooking. She became negligent of her personal appearance, her dress was soiled and shabby, and as Mr. J. himself testified, she dressed more meanly than he would have wanted one of his servants to dress. This conduct in a lady of her antecedents, with an income at that time of about \$30,000 a year, struck her relatives and acquaintances as strange.

In 1867, when seventy-three years old, she fell in her back-yard while on a step-ladder picking grapes, and with difficulty dragged herself into the house, having sprained

her knee and otherwise injured herself. Mr. J. finding her in this condition, urged her to have a doctor, nurse and servants, but she refused, and he, with his wife and daughter, took care of her for a month. It should be here stated that Mrs. Armstrong had been for some years growing irritable, eccentric and hard to please. Her relatives had many of them been alienated by her suspicions of their motives in calling, and by her criticisms of their conduct. Her acquaintances had naturally stopped calling when she adopted her solitary mode of life. She had become suspicious and secretive as early as 1855 or 1856, when, as Mr. J. says, she first enjoined the most perfect secrecy in relation to all her affairs.

In consequence of this fall and her unprotected condition, Mr. J. went to Mr. H., her husband's old friend and business adviser, and asked him to go to her and tell her that he had heard of her fall through the neighbors, and to urge her to keep servants in future. She at once suspected Mr. J.'s agency in the matter, and after upbraiding him for telling one of her secrets, forbade him to visit her again. She transferred a large part of Mr. J.'s duties to a Mr. P., the carpenter who made repairs on her houses. This alienation from Mr. J. lasted three and one-half years, during which time no drives were taken, and no servants kept. Her life went on much as before in spite of a cataract which was removed in 1869 by Dr. Hasket Derby. She had double cataract, but one only was removed, resulting in good vision of one eye for near objects. She could not recognize persons across the room with her reading glasses on. During treatment her sister, Mrs. W., was in attendance with servants for several weeks.

In 1871 she became reconciled to Mr. J., and asked his advice about an income tax, which she thought was too large. She had paid him nothing up to this time and had kept her own accounts and written her own leases to save lawyers' fees; had invested her money, and kept her securities in her front chamber, of all which she

was very proud. About this time Mr. J. says she proposed to make a will, giving him about \$300,000 (or one-half of her property), as residuary legatee. In Nov. 1872, when seventy-eight years old, she was attacked with double pneumonia, and was very sick and delirious for several weeks. Her life was despaired of, and her sister, Mrs. W. came to stay with her, and secured proper attendance. Dr. Rob't Willard was called, and remained in regular attendance on her for the last ten years of her life. Dr. Willard says she was unconscious and incoherent, with lucid intervals for three weeks.

After this sickness Mrs. Armstrong remained very weak in her limbs, and as Mr. J. testified, didn't walk twenty rods in ten years. She occupied a room on the third story, in the rear, adjoining the bath room, and all the other rooms in the house were kept carefully locked. Two servants hired and paid by Mr. J. were her only attendants. Dr. Willard visited her at her own request about twice a month, and treated her for certain unimportant complaints. She took two quarts of the best French brandy per month, during most of the time. Her personal expenses were extremely small, less than a thousand dollars a year, out of an income of about \$40,000, the balance of which she annually paid over to Mr. J., unknown to anyone, and on a form of receipt dictated, as he says, by Mrs. Armstrong.

In the spring of 1878, and again in 1879, when eighty-five years old she proposed again to make a will, and was examined by Dr. Norton Folsom, unknown to her, with reference to her capacity. Mr. J. says she could not bring her mind to it, and it was never made. It was hard for her to make up her mind to give away anything, as Mr. J. testified. She had heirs she didn't like at all, and she suspected that most of them cared more for her money than they did for her, though most of them were either wealthy, or in good circumstances. She died in 1882, leaving her property, valued at three-fourths of a million, to be divided according to

law, among a large number of heirs, diminished by about \$ 350,000, which she had given Mr. J. in the manner described.

All the preceding statements were received from the testimony of the defendant who was called for the plaintiff. The plaintiff was obliged to rely largely on the rather infrequent visits of her relatives for evidence as to her mental condition, as she had few other callers, and was cared for solely by the defendant and servants in his employ. She had had three sisters, one brother and a large number of nephews and nieces, most of them persons of intelligence, and in good standing and comfortable circumstances. The pecuniary interest of each in the estate was rather small. They all visited her from time to time as politeness required, or circumstances would allow, many of them were prevented from calling oftener as they stated by her peculiar mode of life, and sometimes by their cool reception. Her general distrust of their motives was well-known, and they naturally left her to live out the kind of life she had chosen.

From the testimony of these relatives and other chance callers, or business acquaintances, we gather the following facts bearing on her mental condition. Most of the witnesses agree that at the age of seventy-one, in 1865, when she began to live alone, she was irritable, unreasonable, positive, arbitrary, peculiar, eccentric, suspicious, secretive, economical, penurious, out of society, and solitary. That this was a decided change in her character, although in some particulars her natural characteristics were greatly and even morbidly exaggerated.

She was evidently punctillious and exacting in her business relations, as was shown by her suit against Crocker and Brewster, soon after her husband's death, and by the evidence of Mr. J. and some other tenants. One probable reason of her living without servants was the fact that she could not get along with them or they with her, and she found it easier to do her own work, than adapt herself to ordinary domestic

conditions. The only letter she ever wrote Mr. J. was an appeal to come home from the country one summer and settle some difficulty with a servant, whose honesty she suspected. Like many old people she sometimes lost, or mislaid things which she may have supposed stolen. On one occasion \$ 500 and on another \$ 3000 were missing, both sums being afterwards accounted for.

Her falling out with the only person she trusted, the defendant, was a very characteristic occurrence. Because he told an old friend of her fall, she suspended confidential relations with him for three and one-half years, demanding back \$ 2,000 which she had previously lent him. Mr. J. says she was "peculiar and positive," and that he "didn't dare contradict her;" that he had had "a good many tussles" with her, that she was "hard to manage" and "had her own will after 1865." She had a misunderstanding with this person and a falling out with that one frequently. She carried this peculiarity down to the time of her death. She refused to have her own relatives in her sick chamber, and would not ask them to stay over night, and made no effort to entertain them in a proper manner when they called. There is some reason to believe that this was an inherited eccentricity, as Mr. W. testified that her brother had no intercourse with any member of his own or his wife's family for many years before his death, and that he left a million and a-half of dollars. In accordance with a similar morbid condition of mind, she rejected the advice and aid of her relatives during life, and forbade their presence at her death-bed.

Another decided change occurred in 1872, when she was seventy-eight years old, and was sick with double pneumonia. This very serious and prolonged sickness left her so weak, physically, that she was confined to the house, and much of the time to her chamber for the next ten years. The exact nature of this great and protracted disability was not explained. It was said her limbs

were weak, that she tottered and was lame on one side. She said that Mr. J. "couldn't get her over the stairs," and that if she "once got down she would never get back alive," and other expressions indicating great and special weakness, differing from that in ordinary old age. Mr. J. said there might have been partial paralysis, but no account of any shock is given.

Loss of memory began to be a prominent symptom after 1872. Even before the pneumonia, there had been the usual tendency of old people to dwell on the remote past. She repeated to her visitors over and over again the story of Gov. Armstrong's courtship, their travels in Europe, and his instrumentality in procuring the fence round the Common. This tendency increased after her sickness, and she would repeat the same story to the same visitor several times in the course of a short call. She also began to lose and misplace things more frequently. Keys were a source of annoyance to her. She felt called on to keep every door and chamber in the house locked, and carried about twenty keys, the servant said, which she frequently lost. She tied rags to them, to help her find them, or to designate them, but why this was necessary, when as it was testified her eyesight was good for near objects, and she could write and read the Transcript with ease, does not appear. She lost her watch, her glasses and other small things in the same way.

She, not very unnaturally forgot the names of some of her numerous heirs, but, what was a more serious indication of mental weakness, she could not remember long to whom she was talking after having been told. She would, repeatedly, in the same conversation, ask her relative her name, her mother's name, where she lived, how many children she had, and this on many different occasions. In other words, she could not retain in her mind, for an hour, information concerning a single one of her numerous heirs who was in her presence at the time.

On one occasion she forgot that she had just been

informed of her sister's sickness, and on another occasion, that her sister had been dead for some time. This loss of memory grew upon her, so that in the latter years of her life, she repeated the same story half a dozen times in the same visit to the same person.

Her mental weakness was also manifest in her tendency to dwell on the story of her engagement to, and affection for Gov. Armstrong. This she told to relatives and strangers alike, often taking painters and plumbers into her confidence in this respect, showing them Gov. Armstrong's last words: "Oh! how I love you!" written in a book. She said an old gentleman next door had thrown kisses at her and then called and offered himself in marriage. She was fond of advising young people about their love affairs, telling a young girl of sixteen, that her mother kept her too close; that she ought to be married; that it made no difference whom she married, as it was a disgrace to die an old maid. She asked the servants about their beaux, and advised one young man to marry young and another not to marry young, and showed on many occasions, a childish or rather a senile weakness concerning affairs of the heart.

Another side of her character exhibits a growing miserly disposition, relieved by isolated acts of benevolence or excessive generosity, which showed a loss of balance and self-control in business matters. She always showed some disposition to severity in her dealings with her tenants, and in negotiating a lease of real estate with Jordan and Marsh, held out strongly for an additional \$50, saying: "Where is my bread and butter coming from?" After 1865, this tendency increased. For some reason she did not pay Mr. J. for his services for years, and then paid him vastly more than his services were worth on any reasonable estimate. She lived without servants, eating the simplest food, her dress "rusty and dowdy," as Mr. J. says. She lectured the butcher boy and others on economy,

referring to the habits of the French in making the most of every scrap of food; said it was possible to live on a chop and one-half pint of milk a day; said she couldn't afford vegetables; wore an \$8.00 dress for eight years; admired a fifteen-cent apron; wore \$2.50 boots a long time; thought it extravagant for a young girl to wear a silk handkerchief over her shoulders; locked up a large amount of silver to avoid the income tax, and used broken kitchen crockery, two tined steel forks and knives without handles for years, and served her company in the same style, although there was plenty of silver and china in the house. She refused to have a fire in the grate in her room and dined in the bath-room and water-closet, where there was a register, for the sake of the warmth, and wore her underclothing until it was so shabby and patched that her own servants refused to wear it when it was given to them.

Her chief expenses consisted in her two quarts of brandy per month, at \$7.00 a quart, and her doctor's bill. Her annual expenses were less than a thousand dollars. Another very significant condition of things was found at her death. In addition to a general state of dilapidation in her wardrobe, and a moth-eaten condition of the furniture, was found several bureau drawers full of rubbish of a peculiar kind. Her chair was habitually near this bureau, and in it she kept her keys and other articles of daily use. As Mr. W., and several others stated, these drawers were in a chaotic condition.

Among other things in them were found a score or more of rolls or packages as large as the fist, composed of layer upon layer of rags, tied in hard knots, and which must have required many hours to tie up. In the center of these bundles, which were opened with difficulty, were found the following articles: Copper cents, both old and new, and of no special value; silver coins and scrip, the whole amounting to \$400 or

\$500; a chip of wood, porcelain buttons, burnt matches, empty spools, shot, two gold watches, and one diamond earring, worth \$450. An explanation was attempted by the defense, of this state of things, that they were tied up in this way so she would know them, as she designated the keys by rags. What need there was of this when she could read fine print to the day of her death is not apparent. It was also explained that these apparently valueless articles had a value from association for her, but why mummify them in such a strange way, so that they could not be seen by herself? There was no danger of the trifling articles being stolen, if kept in some other way, while there was danger of the valuable ones being lost, by being tied up in rags. In fact a pair of mosaic ear-rings was found in the rubbish of the back-yard, after the drawers had been cleared. To my mind, there is no escape from the conclusion that they were secreted by a miserly dement, with absurd and insane cunning, either as a protection to the valuable articles, or as a purposeless hoarding of worthless and valuable articles indiscriminately.

The defense produced several servants, who corroborated much of the preceding testimony. One stated that she "knew what her relatives were after," and that "she didn't care anything about them;" that she kept twenty keys about her person, and often lost them, with her combs, brush, glasses, teeth, etc., that she had things tied up in her bureau drawers, so that she would know them by feeling, although she was able to read and write. Another testified that she said her heirs "only came to see how soon she was going to die, so as to get her money." Another that she said her "relatives would have had her in hospital, if it had not been for Mr. J.;" that she wore her clothes very thin, so that they were well patched and she would not have worn such herself; that she was a hard woman to manage; that she could thread a needle, but couldn't find things in her bureau drawer and that she often joked about getting

married with servants, painters and plumbers. They all testified generally to her intelligence and mental soundness, her ability to direct her household affairs, to her exacting disposition in certain directions and to her great liking for Mr. J.

Mr. P., the carpenter, who helped her during the period when Mr. J. was out of favor, made a draft of a will for her, in 1869, as she feared the operation for cataract might prove fatal. By this will Mr. P. was to receive \$50,000 and Mr. J. nothing. In 1879, she gave Mr. J. \$75.00 after he was burned out, and wished she could do more for him. She showed him a copy of a will in which she had done something handsome for Mr. J. as well as for himself. He read enough to know he was to be one of the executors. Said she meant to "keep the staff in her own hands," with reference to her property. What that implied is not clear, as she had already given Mr. J. nearly \$300,000.

Sundry tenants, workmen and business callers, testified to brief interviews with her during the last fifteen years of her life, in which she talked of old times and showed the fence and Gov. A.'s portrait and room furniture. Certain differences and disagreements were testified to. She complained of trespassers on her Charlestown estate; of the smallness of income from her brother's estate; of the division line between her house and the next; of the sewer tax; of the color of the paint on the fence, etc.

The defense relied largely on the opinion of Dr. Robert Willard who had not known her previous to her illness in 1872. After her recovery he saw her only four or five times up to 1875, but afterwards more frequently. Up to that time she did not show very great evidence of senility. She was coherent and agreeable in conversation, giving detailed accounts of her travels in Europe. She wanted to talk mostly of the remote past; of her childhood, her courtship, of the distinguished people she met in her first visit abroad; for example, Daniel O'Connell, Bishop Wilson, Wilberforce and Hannah More. She

was very proud of her descent from Edward Johnson, author of a rare book, entitled "Wonder-Working Providence," of which she had two copies.

Dr. Willard saw her read but never saw her write. The last two years of her life he always found her in her chamber. She sat in the bath-room in cold weather. Her mind was clear to within ten days of her death. She was reticent about her financial affairs, but spoke often of Mr. J. with affection. She was obstinate in small matters. She showed some loss of memory in her late years. There was a tendency to repeat what she had said within ten or fifteen minutes. The soundness of her judgment was not affected as far as he knew by this. She was much prostrated in warm weather, and died of disease of the heart.

On cross-examination he said he knew nothing of many of the peculiarities mentioned in the plaintiff's hypothetical question. He thought the condition of things in the bureau drawers peculiar. He had heard of her as a person of very economical habits. Feebleness of limbs was very noticeable the last two years. She was never in the street on foot after her illness in 1872. She might have gone out if she would have worn her long-sighted glasses, but refused in spite of Dr. Derby's advice. He made her an average of a visit a week for seven years. His object was professional and not friendly. She needed looking after and requested his visits. She never told him of her living without servants, or of her quarrel with Mr. J. She thought her sister-in-law, Mrs. W., disliked her because she was of a different religious denomination. She disliked one sister's husband, but was proud of her brother, Dr. W. Mrs. A. had the impression that Dr. Folsom was to examine her eyes. He didn't mean she should know that she was being tested as to her capacity to make a will. He gave Dr. Folsom little or no account of her, and didn't know himself of her gifts to Mr. J. He may not have mentioned her sickness. He intended to have Dr. F. unbiased. Mrs. A.

would have been indignant if she had known her sanity was being tested. He admitted that an examination under such limitations was less satisfactory than without them.

He said Dr. Folsom noticed that she repeated herself and mentioned it to him. Dr. Willard also testified that soundness of mind was not consistent with an extreme loss of memory, though a person might understand what was said, and answer correctly with considerable loss of memory. Senility, he said, is growing old with the slow and gradual failure of all the powers of body and mind. Senile dementia is a passive insanity accompanied by a varied train of symptoms, such as incoherence, untidiness, profound sleeplessness, failure of appetite and digestion; there may be hallucinations. It is easily controlled and patients are rarely violent. Decay of memory is not an indication of senile dementia, although it may accompany it. He denied that a far-sighted memory is mentioned in the books as evidence of senile dementia. A violent change in habits of life may be an evidence; penuriousness alone is not; senile dements easily yield to persuasion. Has read no treatise on senile dementia for some years.

Dr. Willard tried to explain the tying of the articles mentioned by different theories for each article, but, substantially admitted that it was a peculiar state of things; and he could conceive of no reasonable motive in some of the instances; thought it an evidence of oddity and that it would not alone satisfy him of a person's mental unsoundness.

Dr. Norton Folsom testified that he saw Mrs. Armstrong at Mr. J.'s request, in April, '78, March, '79 and May, '79. He took no notes and cannot separate in his mind what she said at the different visits. Went ostensibly to examine her eyes. She gave him an account of her early life and of her desire for a house on Beacon St. She showed him the distance at which she could read. Noticed a lapse of memory at first interview.

Returned to the beginning of a story more than once. Said herself, "you know an old lady's memory is not so good as a young one's." She described her pleasure in reviewing the past. She said she had a method of aiding her memory by putting things in certain places. Showed a comprehension of a defect of mind, which is evidence of soundness of mind. Loss of memory would not affect the reasoning powers. At interviews, in 1879, there was no change and no incoherence. She forgot and repeated as before. Thinks it would sometimes be better for a patient not to know the object of an examination.

The hypothetical question of the defense recounted generally her history down to 1872; stating that she wrote her own leases up to that date and signed all documents afterwards in a firm hand; that she could go down stairs till 1876, eight years before her death; that she read the Bible and French novels, and failed to recognize people because she wouldn't wear long-sighted glasses; that her housekeeping was orderly; that she liked Mr. J, and disliked her relatives; that her relatives neglected her; and that she gave directions to mechanics about work. The condition of the bureau drawers was not put in. The question was then asked of Dr. Folsom, would such a person be susceptible to influence by others, and the answer was "she would not."

On cross-examination he said, "a person to have capacity to make a will, should be able, by memory, or by such aid as they know how to summon, to recall the value of their property in general, the persons who were intitled to inherit it, and those to whom they were under obligations. They should have a normal preception of surrounding objects, be free from morbid emotion, have will of sufficient strength to carry out their purpose, and power of reasoning correctly. Admits that he didn't test her power of recalling her relatives, and didn't test her knowledge of her property. Can't recall details of her statements and knew nothing of her relations to Mr. J.,

or of her living alone. Constant recurrence to a certain round of topics would indicate senility. Defines senile dementia as a decay of mind in old age, with apathy, insensibility to influences from without, sluggishness of intellect, extreme loss of memory and weakness of will. Possibly unreasonable prejudices, or attachments, penuriousness, secrecy, hoarding, suspiciousness and negligence of dress may exist.

Dr. Fisher, the only expert called by the plaintiff, testified that senile dementia in its widest application, included any mental peculiarity in old age, out of the ordinary course, or any mental condition differing from the usual process of growing old. He assented to Spitzka's definition that senile dementia is a "progressive and primary deterioration of the mind connected with the period of involution, but exceeding the ordinary extent of such deterioration to a pathological degree." Any excess or irregularity in the usual process of involution would, he said, be properly classed as senile insanity, or dementia. He described senility as the common and ordinary process of growing old, wherein the senses, perceptions, memory, emotions and intellect, all gradually and uniformly become blunted and weakened, without unusual excitement, depression or alteration of character. This uniformity was often interrupted by accidental pathological changes in the brain, due to arterial disease, malnutrition, starvation of the cortex, atrophy, apoplexies and the like, which might result in senile insanity, or dementia.

He mentioned as among the mental characteristics of senile dementia, extreme loss of memory for recent events, unusual reversion of the mind to the events of early life to the exclusion of more recent interests, alteration of character, whereby the person from leading a strict and sober life becomes exhilarated, garrulous, childish, amorous, or dissipated, or depressed with disgust of life and fear of poverty; or he may become irritable, fault-finding, suspicious, secretive, penurious, showing hostility to friends and relatives, with undue

favoritism to comparative strangers. Any decided alteration of character would indicate some form or degree of senile dementia.

In answer to an hypothetical question put by plaintiff including all the evidences of loss of memory, change of character, irritability, secretiveness, parsimony, exacting disposition, undue prejudice against relatives, and undue favoritism to Mr. J., with the purposeless hoarding of trifles, in Mrs. Armstrong's case, he said he thought there was reasonable ground for belief in the existence of senile dementia in some form or degree in such a person. He thought there were evidences of alteration of character as early as '65, when she began to live alone and that decided evidence of weakness of mind existed after her sickness in 1872, when she was seventy-eight years old, increasing from that time gradually until her death. He thought the condition of articles tied up in rags suggestive of the motiveless secreting and hoarding of articles of more or less value by miserly demented persons. He thought a person like the one described, of exacting disposition and arbitrary and unreasonable temper, could be easily led by any person who fell in with her prejudices, and humored her weakness; that such a condition was often taken advantage of by designing persons to further their own purposes.

The above statement is written from memory, while the following *rèsumè* of Dr. Cowles' testimony is from brief notes taken at the trial. Dr. Cowles was the only expert called by the defense, except the family physician and Dr. Folsom, who had seen the patient. Dr. Cowles gave a definition and description of senile dementia, and answered the hypothetical question of the defense, which was put to Dr. Folsom, that such a condition of things would not necessarily indicate senile dementia to his mind; he thought the articles in her drawer would not contra-indicate sanity; neither would her living alone undoubtedly indicate

senile dementia; nor her quarrel with Mr. J., which was peculiar and not exactly like an ordinary misunderstanding. Economy is not a necessary evidence of insanity. A *sustained* quarrel is not consistent with the *irritability* of old age he thought, which involves the *easily* yieldings to the control of others.

On cross-examination he said the condition of the bureau drawer was of little account, because the rest of the house was in good order; still he could not quite understand the reason for her tying things up in that way. A person may have capacity to manage property, and yet have an unreasonable prejudice, and show undue favoritism, indicating some mental unsoundness. Change in mode of life, if taking place suddenly, *would* indicate unsoundness; a slow change would suggest the necessity for further investigation. Cheap mode of life would show a loss of desire for display, and return to simplicity of living; thought such table-service not consistent with her position. Her breach with Mr. J., was a sign of strength of mind *in her*.

Dr. Cowles was asked if he would always inform a patient that he was being examined as to his capacity to make a will. Dr. Fisher had testified that it was his invariable custom to do so, as it was necessary to inquire directly about heirs and property. Dr. Cowles said he might want to approach a case independently, and circumstances would determine whether he would inform a patient. He admitted that a person of strong will in certain directions, and of weak will in others, was more easily led by a person who humors this condition.

He agreed substantially with Dr. Fisher in his definitions of senile insanity. He described senility and said senile dementia is a further failure of mind and a greater loss of memory. Loss of perception impairs the judgment and understanding, and runs into disease of mind. Excessive impairment of mind becomes disease. Dr. Cowles dwelt more upon impairment of mind, though, admitting

that alteration of character might be evidence of a diseased mind.

The jury found for the plaintiff in fifteen out of sixteen exhibits. They found that, from 1873 to 1875, she was unduly influenced, but not of unsound mind, and that after 1875, for the last seven years of her life, she was both of unsound mind and unduly influenced. The result was a verdict against Mr. J. for \$350,000 and interest amounting to half a million dollars in all. Against this Mr. J. could put in a claim for services for a long period of years, which claim would probably be adjusted by a master appointed by the Court.

Whatever may be thought of the merits of this particular case, it is true that there is often room for reasonable doubt as to the existence of senile dementia. It does not always show itself in the extreme form of mental impairment, or mental excitement and delusion, but may exist as a somewhat chronic alteration of character dependent on senile changes in the brain, and the exact point where these changes become pathological cannot be definitely ascertained. In such a case, experts might fairly differ, especially when obliged to give an opinion on a hypothetical case in which the presentation of evidence is *emphasized*—on the one hand for the plaintiff, on the other for the defense. It is sometimes this emphasis, which is just enough to turn the scale in the expert's mind.

The same array of facts may almost always be explained in two different ways, and present one meaning to one set of witnesses and another to the other set. It is hard even for an expert, less biased than the other witnesses, to get far enough away from a case to take a broad and comprehensive view of it. He is led to keep the points which tell for the side on which he is called in the foreground of his mind, where they obtain undue prominence, insensibly as it were. And the hypothetical question still further restricts him to a partial view of the case.

Taking a retrospective view of the Armstrong case, I cannot resist the belief that she was in some degree insane, and being so, her business adviser, Mr. J., should have refrained from dealing with her in the secret manner prescribed by her, or, if he could justify it to his conscience, he ought not to have been and, perhaps, was not surprised that it led to legal investigation. A person who proposes in these days to leave large blocks of his property outside the natural line of descent and especially to put it in private hands, thereby losing the sympathy which is drawn out by public bequests, should make his intentions so public as to admit of no doubt, or expect to have them legally investigated after his death.

A Case of Insanity Resulting in Homicide and Attempted Family Slaughter and Suicide.

By HENRY R. STEDMAN, Boston, Mass.*

IN the following account, interest attaches chiefly to the question of an epileptic origin for a mother's attempt to destroy her children's life and her own.

The patient, a pale, rather spare German woman, forty-six years of age, and married, was admitted to the Danver's Lunatic Hospital, in June, 1882. She told me her story, the first account of the case I had heard, in a simple, earnest and pathetic manner. From her childhood until nineteen years of age she was subject to frequent seizures, apparently epileptic. At these times she would fall down and lose consciousness, knowing afterwards nothing of the circumstance except what she learned from the family. The disappearance of these fits was followed in the same year (her 19th) by the establishment of her menses, and but one recurrence of the convulsions took place until she was twenty-six years old, when she was six weeks pregnant with her eldest child. This seizure was very severe, so much so, that her physician feared that she would not survive it. She has since had four children, the youngest of whom was born five years before her admission to the asylum. Her home-life had been most happy until about two years before admission, when her husband, having formed an attachment for another woman, began to abuse the patient and the children, often striking the latter, but never doing the patient any bodily harm. About a year and a half previous to her admission, she underwent an operation at the New England Hospital for Women for some uterine disorder and remained there for six weeks. Shortly afterwards she was again treated for similar trouble at

*Read before the New England Psychological Society, Sept., 1885.

the Massachusetts General Hospital. On her return home, the husband resumed his abuse and often threatened to send her to an asylum. Soon afterwards he deserted his wife to live with the woman above mentioned, furnishing the former with barely enough to support the family. During the winter preceding her admission, her health began to fail and her sorrow over the past and her anxiety for the future increased. At this time she lost her sleep to some extent. At New Year she began for the first time to contemplate suicide, and about three months later the idea of killing her children also occurred to her, after reflecting that by her own death alone they would simply be exposed to greater neglect than before. In this period she suffered considerable with pain in the head, and a sense of bewilderment and confusion would come over her until she hardly knew what she was doing. Soon, she scarcely slept at all, and once even rose at night to carry out her purpose, but could not summon sufficient resolution. Finally, one night about six weeks before admission, she took the bread-knife and inflicted a wound on the arm of one of her boys, either Emile or Alfred, which one, she does not remember.

Here ended her recollection of any further steps in the tragedy, except her horror at the sight of the blood which followed the cut, and her removal to the jail by a police officer. She learned only through her sister the facts, viz: that she killed, at the time, her youngest boy (Auguste), by cutting his "neck," and that she wounded each of the others, her only girl being so seriously injured as to require to be sent to the City Hospital. She also made an attempt upon her own life by inflicting many superficial transverse wounds with a knife on the calf of the left leg, severing some of the varicose veins which are very prominent in that part. At the time of examination she was quiet, but her expression during the recital of her story indicated much anguish. My record further states that she betrayed no delusions whatever, but had an overwhelming sense of

the enormity of her crime; was greatly agitated when reference was made to her dead child, burst into tears and exclaimed that she could not believe he had gone. Sees nothing but sorrow ahead for the others and herself and wishes she were dead. Is distressed to think that the children are now under the father's care. She never refers to future punishment, nor in fact does she express any religious sentiment. She complains of constant and severe frontal headache. Admits that she sleeps well. Her physical condition was good. Tongue, firm, clean and uninjured. Appetite good. Bowels open. Menses regular, but occasionally painful and profuse. Uterus large—three inches long—with some prolapse and consequent retroversion. Evidences of an operation for fissured cervix, with good result. It was learned from a sister of the patient that she was naturally reserved and sad in disposition, and that, in her opinion, the husband's infidelity and abuse had been correctly reported by the patient. The patient's sister and sister's daughter suffered from epilepsy. I afterwards heard that, when the patient was seen by the physicians shortly after the commission of the crime, her condition was one of profound melancholy with great agitation, and it was reported that the prison officials were so convinced of her suicidal tendencies, perhaps, from the fact of her recent attempt, perhaps, from her melancholic excitement, that she was closely watched night and day. Dr. G. F. Jelly and Dr. McCollom, went before the grand jury, and upon their representation no indictment was found, and the patient was sent directly to the hospital. Dr. Jelly has kindly given me his notes of the case while under his observation, and as the details of the occurrence and especially the points I wish particularly to call to notice are so vividly presented, I will give them at the risk of a little repetition:

"I visited her at the Suffolk County Jail, June 4th, 1882, and found her in a state of profound melancholia, quite emotional and manifesting at times great mental distress. I will give her own words: After saying that her

husband had been going with another woman, she went on thus: 'He left me and said he would live with me no longer. He treated me badly. I pleased him all I could. My head felt badly and I could not sleep. I felt that I could not live longer. I thought I would die and we would all die together. I got up one night (Sunday), took the bread knife and went to the children, could not do it then; did not go to bed the remainder of the night. Next night (Monday), got up (had seen them bleed when a child at home) cut one boy, cannot say whether Emile or Alfred, and then cut my own leg. I said I will cut all four and myself that we may all go together. A policeman came and when I went with him, I saw Auguste, the baby, lying with blood on his neck; knew he was dead. Do not recollect cutting him. When I see the blood [at the time she made the cut on Alfred's arm], I could not do any more. Do not know when I cut Auguste (the baby), I liked him too well for that. I cannot live any more, but I cannot leave my children to their father. He left them alone while I was in the hospital. He would not get stockings for the boy. My daughter said he left them alone and she was very much frightened at night, and I knew when I died he would do the same. He would go to his lady. So long as I was young and healthy he liked me, but, when I was sickly, he ran away from me. I felt as if I was drunk or in a dream on the day before I cut them. I see the baby all the time and hear him speak to me. I am not afraid. Do what you like. My little boy is dead and that is the baddest you can do. Do what you like.'

Dr. Jelly says: "She apparently had no recollection of wounding more than one of her children, and I think she was very honest in all her statements. The question occurred to me then whether her non-recollection of what she had done was caused by an epileptic seizure, or whether she was, at the moment of narrating, too frenzied and excited to recollect anything clearly."

From the time of her admission, until I left the

Hospital (in July 1884), I elicited nothing in the way of delusions, nor did she manifest any peculiarity of conduct. Her manner was calm and she kept herself diligently employed from the first. She was, to be sure, inclined to be reticent and to avoid others, and her expression was always rather sad. Her interest in and affection for her children remained as intense as ever. In the months of June, July and August, 1883, she had three "dizzy spells" as she called them, accurate details of which I am unfortunately unable to give. There was, however, "transient loss of consciousness and subsequent mental confusion." Dr. Goldsmith, the Superintendent, thus describes these attacks, and adds in a recent letter, "Since my return in July, 1884, she has been uniformly quite, orderly and industrious. I have seen no evidences of insanity, though she does show evidences of a neuro-pathic diathesis. Last Autumn, supposing she had been trifled with regarding a promise made her, she refused food for a few days, saying she would not eat until she was allowed to go out from the hospital. After careful explanation she became convinced that she was wrong and began to eat."

At first glance this case appears to be one of melancholia without delusions—unless we consider delusional the patient's view as to the means necessary to escape family disgrace and misery. The slaughter of the family, but partially successful in this instance, is well known to be a result only too common in such cases. A little analysis, however, discloses a much more complicated mental state, which, to my mind, gives the case an unique interest and makes any such explanation far from adequate. It will be noticed that after carrying out but incompletely the purpose on which her mind was bent during the depression preceding the attempt, the patient showed none of the usual signs of melancholia. This was the case at least from the time of her admission to the hospital shortly after the occurrence. The absence of agitation, of sleeplessness, of serious loss of appetite and disinclination

to exert herself was noticeable; the only signs of depression at the time of admission and subsequently being her great anguish, which was later replaced by sadness at her hopeless prospect. She was also filled with unfeigned remorse at the commission of the crime, gave every evidence of natural and overwhelming grief over it and made no attempt to justify her conduct—in corroboration of which witness her words quoted by Dr. Jelly: "I do not know when I cut the baby, I like him too well" * * * * "my little boy is dead and that is the worst you can do [to me]."

So poignant was her distress at the thought of what she had done, that while at the jail it was feared she would commit suicide.

For pure melancholia, with or without delusions, to follow such a course is, to say the least, unusual.

Let us now consider the epileptic phase of the patient's mental state. These epileptic attacks which we have seen to be common to other members of her family appear at critical times in the patient's life, being especially severe during a long period of tardy menstruation, and again eleven years later during pregnancy. This being the case, it seems reasonable to suppose with our knowledge of the possible exciting causes of epileptic seizures, that this season of domestic trial and distress, not to speak of ill health, should have resulted in the return of the epileptic state in some form: *petit mal*, epileptic vertigo, or what the French call "*absence*." In this connection also her transient lapses of consciousness manifested while at the asylum are worthy of notice. Add to these surmises the undoubted fact of the patient's unconsciousness at the time of killing her child and wounding the others and herself, and there is little room for doubt that we have a case, not of primary melancholia with frenzy aggravated by the epileptic impulse, but of automatic violence during some epileptic state occurring in a person of decided melancholic temperament in the course of a fit of depression. To be more explicit, a melancholic epileptic wounds with

homicidal intent her son and seeing the blood flow, loses consciousness and then continues automatically the act once begun with the disastrous results recorded. As bearing on this view, I will here introduce two cases reported in Dr. Magnan's *Lecons Cliniques sur l'Epileptic*, which I think are new ones to most of the Society as the work is not readily accessible here:

"This continuation of acts begun, sometimes has consequences even more disastrous. I could multiply examples, but will content myself with relating the case of the woman P——. Her father died paralyzed, and her mother in childbirth. During her own childhood (at nine years of age) our patient had several convulsions. At twenty-two years she was taken with convulsions during her first confinement. The following year she had a miscarriage in the fourth month and remained ill six weeks, slightly depressed and melancholy. When thirty-four years old she had an attack of melancholy which lasted six months. In that interval she lost consciousness entirely for twenty-four hours. In 1880 symptoms of vertigo were noticed for the first time. She was found on two different occasions extended on the floor without retaining any recollection of the attacks. Since then she has been depressed, has had a feeling of helplessness and even suicidal tendencies. On the 17th of last May she folded back her mattress from the head of the bed, placing her child on the vacant space, when, taken with vertigo, she rolled the mattress back on the infant without thinking of it, and suffocated it. Her little son aged seven years, who was present, and can therefore testify as to the truth of her statement, cried out to summon the neighbors. When they arrived they found the patient standing motionless in the middle of the room, not volunteering to speak, and when they raised the mattress the child was dead. Augustine is ignorant to this day of how the accident occurred; she knows that her child is dead, but thinks it died from want of care since she entered the asylum." * * *

"In some cases the epileptic ictus does not interrupt an idea, or rather an insane tendency, and as we have seen, those subject to vertigo continue an act once begun. In the same manner an epileptic can follow an idea in which, at the moment of seizure, he is absorbed without his mind (so to speak), being concerned with it. For instance, a working jeweler, aged thirty-seven years, seized at the same time with melancholy, delusions and epilepsy, was one day seated on a bench in the *Place du Chablet*. Deeply discouraged, he had resolved to take his life, when, seized with epileptic vertigo he rose, went straight to the bridge, mounted the parapet and plunged into the Seine. Succor was at hand and he was promptly rescued. When he came to himself he remembered being seated near the fountain, but was quite ignorant as to how he could have fallen into the Seine; he had no recollection of what was passing till two men approached him and threw him a rope to pull him out of the river. He had undoubtedly the idea of suicide, but he would never, he said, have thrown himself into the Seine, because, knowing how to swim, he would have been unable to drown himself."

It is a view shared by several authorities in mental disease that epileptic, impulsive violence is inconsistent with premeditation of the act. Dr. Eccheverria, in a recent number of the *Journal of Mental Science*, combats this view with sound argument based on a number of striking cases, in which category might properly come, I think, those I have reported. He goes so far as to say: "I could keep on referring to instances to show that a pre-existing feeling prompted the unconscious act of epileptic violence to convince the reader that it *commonly* happens. * * * * There is no difference between the thought, or any emotion or feeling of animosity, that might take hold of the mind before the outset of the attack, and the same idea or feeling vividly renewed with blind persistency during the period of unconsciousness and automatism coincident with or rather constituting when not actually prolonging the fit."

Paretic Dementia

IS IT A PSYCHOSIS, A NEURO-PSYCHOSIS OR A COMPLICATION OF THE PSYCHOSES?

By JAS. G. KIERNAN, M. D., Chicago, Ills.

Late Medical Superintendent of Cook County Hospital for the Insane, Member of the Society of Medical Jurisprudence and of the Chicago Medical Society, etc.

BEFORE proceeding to a further discussion of the symptomatology, I propose to pass in review the clinical features presented by the cases coming under my observation at the Cook County Hospital for the Insane. Out of 921 cases of insanity tabulated, at present writing, 83 or nine per cent. were cases of paretic dementia.

The races attacked by paretic dementia were as follows:

NATIONALITIES.								Male.	Female.	Total.
ARYAN,	-	-	-	-	-	-	-			
Teutonic,	-	-	-	-	-	-	-			
German,	-	-	-	-	-	-	-	11	1	12
" American,	-	-	-	-	-	-	-	1		1
" Austrian,	-	-	-	-	-	-	-	1		1
" Swiss,	-	-	-	-	-	-	-	1		1
Hollanders,	-	-	-	-	-	-	-	4	1	5
Anglo-Saxons,	American	-	-	-	-	-	-	17	1	18
" " English,	-	-	-	-	-	-	-	3		3
" " Scotch,	-	-	-	-	-	-	-	1		1
Scandinavian,	Danish,	-	-	-	-	-	-	1	1	2
" Swedish,	-	-	-	-	-	-	-	2	2	4
" Norwegian,	-	-	-	-	-	-	-	1		1
Celtic,	-	-	-	-	-	-	-			
Irish,	-	-	-	-	-	-	-	17	7	24
Latin,	-	-	-	-	-	-	-			
French,	-	-	-	-	-	-	-	1		1
French-Canadian,	-	-	-	-	-	-	-	2		2
Slavonic,	-	-	-	-	-	-	-			
Polish,	-	-	-	-	-	-	-	1		1
SHEMITIC,	-	-	-	-	-	-	-			
Hebrew,	-	-	-	-	-	-	-	1		1
NEGRO,	-	-	-	-	-	-	-	5		5
								70	13	83

The proportion of Irish attacked by paretic dementia

is much greater in Cook County than in New York City, and this arises from the Irish in Chicago being much more addicted to speculations than those in New York. To my personal knowledge, Irish women who, in New York, would simply hoard their money and keep away from all speculations, here deal in options on wheat and pork. The relatively small percentage of Germans and Americans is due to the fact that most of these are sent to the State Institution, their friends having a not unfounded dislike for the Cook County Hospital, and being usually in fair circumstances, naturally object to their going to a pauper institution under dubious political management. The increased percentage of parietic dementia among Negroes, is due to the fact that the Negro in Chicago is treated as an equal in commerce and politics, and is thoroughly under the influence of the speculative atmosphere which permeates the commerce of the city.

PRECEDENT FACTORS OF ETIOLOGICAL AND COMPLICATORY VALUE.						Male.	Female	Total
Locomotor Ataxia,	-	-	-	-	-	4	2	6
Epilepsy,	-	-	-	-	-	2		2
Multiple Cerebral-Sclerosis,	-	-	-	-	-	1		1
Tumor of Pons,	-	-	-	-	-	1		1
Paranoia,	-	-	-	-	-	2		2
Alcoholic Insanity.	-	-	-	-	-	2		2
Senile,	-	-	-	-	-	2		2
Menopause,	-	-	-	-	-		3	3
Myelitis,	-	-	-	-	-	1	1	2
Traumatism,	-	-	-	-	-	3		3
Lues, 5 years before,	-	-	-	-	-	5	3	8
" 10 " " "	-	-	-	-	-	9	2	11
" 20 " " "	-	-	-	-	-	18		18
None Ascertainable,	-	-	-	-	-	20	2	22
Total,	-	-	-	-	-	70	13	83

That parietic dementia is often preceded by certain neuroses like locomotor ataxia has long been recognized, but the influence of the other neuroses cited has not received the attention it should. Paranoia has been recognized as a precedent complicatory element by Hösterman, Spitzka, Christian, C. F. Fol-

som, Morel and others. In an article written some years ago,* I had already called attention to a possible ætiological influence of true epilepsy. The figures cited as to lues need not here be discussed, since the question has been discussed at length in a previous communication.† The cases of senile and alcoholic insanity developed into true paretic dementia.

PREMONITORY SYMPTOMS.							Male.	Female.	Total.
Spinal Symptoms,	-	-	-	-	-	-	26	5	31
Theft,	-	-	-	-	-	-	15	2	17
Emotional Disturbance,	-	-	-	-	-	-	3	2	5
Not Ascertainable,	-	-	-	-	-	-	26	4	30
Total,	-	-	-	-	-	-	70	13	83

From the number of cases in which factors likely to give rise to spinal symptoms preceded the onset of paretic dementia, the relative frequency of premonitory spinal symptoms has not the significance it might seem at first sight to have.

AGE AT OUTSET OF DISEASE.							Male	Female.	Total.
20 to 25,	-	-	-	-	-	-	5		5
25 " 30,	-	-	-	-	-	-	8	3	11
30 " 35,	-	-	-	-	-	-	10	2	12
35 " 40,	-	-	-	-	-	-	8	3	11
40 " 45,	-	-	-	-	-	-	18	1	19
45 " 50,	-	-	-	-	-	-	4	1	5
50 " 60,	-	-	-	-	-	-	12	2	14
60 " 70,	-	-	-	-	-	-	4	1	5
80,‡	-	-	-	-	-	-	1		1
Total,	-	-	-	-	-	-	70	13	83

The number of cases in which paretic dementia occurred before the age of twenty-five is especially significant, when it is remembered that the majority of the cases were of idiopathic dementia, and not of mixed origin, which Régis is inclined to claim is always the case with paretic dementia under twenty-five.

**Journal of Nervous and Mental Disease*, 1878.

†*ALIENIST AND NEUROLOGIST*, 1883.

‡This was a pure case of idiopathic paretic dementia.

PROCEEDINGS
OF THE
NEW ENGLAND PSYCHOLOGICAL SOCIETY.

Boston, September 10th, 1885.

The New England Psychological Society met at 3:30 o'clock P. M., at the Brunswick, Vice-President J. P. Bancroft, in the chair. There were present, Drs. J. P. Bancroft, Chas. Bancroft, Baker, Benner, Draper, Goldsmith, Turnbull, Channing, Jelly, George Brown, Ira Russell and Fisher.

The records of the last meeting were read, and accepted. Dr. Asbury G. Smith was chosen a member.

Dr. Goldsmith moved, in view of the report of the Secretary, that, as the present time of meeting was acceptable to all but two or three members, the time of meeting remain as heretofore. Voted.

The Secretary read letters from the editors of *THE ALIENIST AND NEUROLOGIST*, and *Boston Medical and Surgical Journal*, the former editor stating his willingness to publish the papers and proceedings entire; the latter, such selections as the Secretary might make.

Dr. Channing thought a special journal preferable to the *Boston Medical and Surgical Journal*, because the latter would leave out much of interest to specialists. He thought the papers and discussions should be printed together. Reprints could then be obtained of valuable papers. He moved that the Society publish its transactions in *THE ALIENIST AND NEUROLOGIST*.

Dr. Jelly remarked that the Secretary might publish, in the *Boston Medical and Surgical Journal*, such papers as he chose. Motion of Dr. Channing carried.

The resignations of Drs. Lathrop, Tarbell and Folsom were accepted.

Dr. Draper moved that the custom of having both an afternoon and evening session be resumed. Voted.

Drs. Nims and Benner were appointed to read at the next meeting.

On motion of Dr. Goldsmith, it was voted to meet the second Tuesday in December, at usual time and place.

Dr. J. P. Brown, the first reader appointed, having failed to prepare a paper, Dr. Fisher read one entitled, "The Armstrong Case," followed by Dr. Stedman, who read a paper entitled, "A case of Insanity resulting in Homicide and Attempted Family Slaughter and Suicide." [See page 79 and page 99 respectively of this JOURNAL.]

Discussion jointly of the two papers read followed.

Dr. Twitchell presumed the case of Mrs. Armstrong was one of senile dementia. Has a similar case in mind of a widow with some property and a good education, whose peculiarities became more marked in old age. She was left free in the disposition of her property, unless influenced to some extent in favor of certain charities. In the last year of her life she was induced to make a will changing her intentions as previously expressed. She was forgetful of persons, and once wrote a letter to a sister who had been dead two years. It took Dr. T. some time to convince her she was dead. She had no delusions, but asked the same questions over and over. She died of pneumonia. Unless there was a marked change in mode of life and in disposition of property, did not think interference necessary. Senile demented often imagine hostility on the part of relatives

Dr. Baker, in reference to Dr. Stedman's paper, said that epileptic convulsions in childhood often leave a stain on the mind which continues through life. Persons who have had infantile convulsions may more readily yield to mental disease. Thinks convulsions in early life, though they may not perceptibly impair the integrity of the brain, may render a person more liable to an attack of melancholia.

Dr. Goldsmith, referring to the Armstrong case, said it was most likely one of senile dementia. He agreed with Dr. Fisher in thinking that any person, who leaves his property to others than those to whom the law would give it, must show conclusively that he is in full possession of his faculties. Relatives have claims which should not be lightly ignored. Although a person's mind is impaired, if his will is consistent with his views of disposal expressed in earlier life, and his property is left to heirs more or less, as the law would leave it, the will may be left uncontested. But when property is diverted, to private individuals, especially not heirs or relatives, the testator should be protected against himself. The effect on designing people would be bad, if property is easily willed away from its natural line of descent uncontested. Such persons should be made to see that their schemes will not succeed. The speaker had known many instances where parties had attempted undue influence.

In regard to Dr. Stedman's case, Dr. Goldsmith remarked that he found on questioning the woman, it was hard to tell just when unconsciousness began. She claims that she has no memory of anything after cutting the first child. Impossible to say what caused this loss of memory. She had had two attacks in the Danver's Hospital, which were not fainting fits, but were of cerebral origin. He never could see that, because an act was planned, it could not have had an epileptic origin. Thinks it is the most natural thing in the world for a person to do what is in the mind when an epileptic attack comes on. The most automatic act will be performed, just as in aphasia the words most often used are spoken. This patient had thought for months of killing her children and herself, and when she became epileptic, it was the most natural thing to do. An apparently rational purpose does not prove an act to be rational.

Dr. Russell remarked that a sudden change of character, such as took place in Mrs. Armstrong, must have been due to disease, rather than to natural causes.

Diversion of property from ordinary channels is suspicious, and suggestive of mental unsoundness.

Concerning Dr. Stedman's case, he said he had observed cases of mental epilepsy without physical convulsion; one while conversing, would suddenly stop and begin to abuse the other party, or some one else present, for a minute or two; would threaten to kill his wife, for instance; when coming out of the attack, charged those about him with using the exact abusive language to him which he had just used towards them.

Dr. Bancroft asked if the woman's motive for concealment had been considered.

Dr. Goldsmith said she always told the story in the same way, and appeared entirely innocent of any deception.

Dr. Jelly said her honesty was very apparent; she didn't care what became of herself, and, therefore, had no motive for deception. Her horror was great at having done the deed, but she showed no remorse, and was glad the children were out of misery; said she could hear her child calling constantly to her before the act. Thought, possibly, frenzy would account for her want of memory.

Dr. Bancroft asked if the fact that she did not complete her work fall on the side of frenzy. Do not epileptics carry out their purpose?

Dr. Goldsmith thought acts due to melancholic frenzy better controlled and carried out than in the epileptic status. In the latter there is some mental confusion which makes the act ineffective often. Acts of melancholic frenzy are usually well planned and carried out.

Dr. Jelly related case of homicide and attempted suicide, due to melancholic frenzy, under his charge at the McLean Asylum, in which there was complete memory of the act.

Dr. Goldsmith related the case of a melancholy patient who proposed to kill his mother-in-law because his children were in danger of being idiots.

Dr. Turnbull suggested that there might have been an hysterical element in the case. Recalled a case of what appeared like melancholic frenzy with double or partial consciousness and morbid impulses. She had attacks resembling both petit mal and hysteroid epilepsy. At home, she had a guard to her window to prevent accidents. She was dwelling on the suicidal idea much of the time, and in one of her attacks, made an attempt at suicide, though, usually, she discontinued what she had been doing.

Dr. Fisher said there might be complete loss of consciousness in melancholic frenzy for a time, so that epilepsy was not a necessary cause, although it may have been the cause in Dr. Stedman's case. In some cases under arrest for attempted homicide and suicide, the motive might be suspected, but he related a case in which the motive for concealment could not possibly have been present.

Dr. Draper referred to two recent cases in Vermont, one, a youth subject to mental epilepsy, killed his father, his mother and himself; another, with hallucinatory insanity, killed his father, mother, sister and himself. The latter showed more method than was consistent with mental epilepsy. He believes the act may be planned and then carried out automatically in some cases. Wonders why such patients do not oftener satisfy themselves by carrying out the suicidal impulse alone.

Dr. Stedman felt that the chief object of the paper had been gained in eliciting general discussion on a peculiar case of doubtful nature. The opposite views expressed favoring, as they did, melancholia on the one hand and epilepsy on the other, seemed to him additional indication of the presence of both elements. As to the unconscious interval in this case and the similar ones instanced, it remained, he thought, unexplained except by some epileptic condition.

In reply to Dr. Bancroft, he laid great stress on

the fact of the patient's evident sincerity and utter indifference to her fate now that her child had gone, as strong evidence against any desire to escape punishment. The patient's entire honesty struck every one who questioned her.

Dr. Fisher's case in this connection, he thought, seemed hardly complete enough in the details of the patient's history for a conclusion to be drawn as to the precise diagnosis, but he believed that could more be learned about it, it would prove an instructive contribution to the class of unconscious manifestations, whatever their source might be in this instance.

In reply to Dr. Jelly, he referred to the comparatively sudden cessation of the melancholic symptoms after the subsidence of the patient's natural outburst of grief and despair at what she had done, as difficult to explain, on the ground of uncomplicated melancholia.

SELECTIONS.

NEUROTHERAPY.

HYPNONE, THE NEW HYPNOTIC.—Phenyl-methyl-acetone or aceto-phenone are the chemical names of a new drug, upon the hypnotic properties of which M. Dujardin-Beaumetz has recently made a report to the Académie de Médecine, and which he has thoroughly studied with Dr. Bardet, at the Hospital Cochin. On account of its very marked hypnotic properties the experimenters propose for it the name of hypnone, which is more convenient than the other names, and is at the same time descriptive of its properties and nature. It was discovered by Friedel in 1857. Its formula is C_8H_8O , it is a liquid at 20° C., and boils between 198° and 199° C. Its specific gravity is from 1.032 to 1.015, it is not soluble in water, and its strong odor resembles that of cherry-laurel water or cut oats. Its physiological properties have been studied by Popoff and Nencki, who showed that it is transformed in the organism into carbonic and benzoic acids, and that it is finally found in the urine in the hippurate state.

When administered to an adult in doses of 3 or 4 drops—5 to 15 centig.—mixed with a little glycerine and given in a gelatin capsule, hypnone produces deep sleep, and in alcoholic subjects its hypnotic properties are superior to those of chloral and paraldehyde. Dujardin-Beaumetz and Bardet have administered it to nine patients, and have as yet seen no symptoms of intolerance. The halitus becomes unpleasant from the elimination of acetone by the lungs. Injected under the skin of a guinea-pig 50 centig. caused profound sleep, which deepened into coma, in which the animal died in about six hours. The discovery of a drug with such effects from a very small dose must be regarded as a valuable addition to therapeutics. It still remains to see why it is a hypnotic, and whether further experimentation will abundantly confirm the claims of the distinguished clinician who now reports upon it.—*Journal of the American Medical Association.*

THE USE OF ARSENIC IN CHOREA.—In London, at a recent meeting of the Harveian Society, Dr. W. B. Cheadle reported, as the result of an experience in one hundred

and sixty cases clinically observed during the last eight years, that the arsenical treatment materially shortened the duration of the disease, cases using it terminating in recovery within five weeks, as the rule; whereas with no treatment they extend from eleven weeks to a year or more.

Its value was recognized by Todd; but, like others since his time, he dreaded its toxic effects. The form in which it is best used is in combination with iron, and Dr. Cheadle prefers the ordinary liquor arsenicalis (liquor acidi arseniosi, U. S. P.) in ordinary doses with tincture of ferric chloride. A series of cases treated with arsenic recovered, on the average, in twenty-nine days; in others, treated with other remedies, its course averaged forty days. Although the remedy is usually well borne in the doses in which it is employed, yet Dr. Cheadle noticed a hitherto-undescribed effect when the arsenic is given to young children, in the form of a bronzing of the skin resembling Addison's disease. The discoloration was most marked on the body in the flexions of the large joints, but not on the face. It afterwards faded away; although in one case the process was very slow. The pigmentation was similar to that produced by chronic congestion of the skin, and was not analogous to the metallic deposit in argyria. The results reported by Mr. Cheadle are confirmatory of the observations of others; and, while they indicate that arsenic is one of the most efficient of our remedies in the treatment of chorea, it is not to be inferred that the remedy is to be used to the exclusion of chalybeate and other tonics, which have also been found useful as adjuvants.—*Medical Times*.

THE BAROMETER AS A GUIDE TO HEALTH.—Dr. M. A. Veeder, of Lyons, N. Y., has been led by his observations to believe that the barometer may become an instrument of as great value in saving life as it is now in saving crops or ships. It is a familiar fact, he says, that many persons who are afflicted with rheumatism are able to foretell changes of the weather by means of the aches and pains that they experience. Persons who are subject to headache, also, are apt to suffer most when the mercury in the barometer is changing its level rapidly, as, for instance, before a thunder-storm. The cause of these symptoms appears to be a difficulty in the adjustment of the volume and rate of the circulation of the blood to the varying atmospheric pressure upon the sur-

face of the body. Ordinarily the results are not serious, and but little attention is given to the subject. The question arises, however, as to whether there may not be a class of cases in which the movements of the mercury in the tube may become of great prognostic import. Dr. Veeder says that he has noted the occurrence of several deaths from apoplexy at times when rapid fluctuations of atmospheric pressure were indicated by the barometer; and he believes that at such times over-excitement, over-eating, improper clothing, and the like, may induce consequences most disastrous to those who are predisposed to apoplexy, the weakened blood-vessels being already subjected to unusual strain by reason of the unfavorable atmospheric conditions. Although the cases observed by the writer thus far are not numerous, yet he maintains that the probabilities with regard to the matter are such that it is the part of wisdom that those who are advanced in years, or subject to symptoms that indicate an apoplectic tendency, should be warned to exercise great moderation in all things, whenever the mercury is seen to be unusually active in its movements.

URETHAN, A NEW HYPNOTIC.—Dr. R. v. Jaksch lately studied the nature and action of this new agent, with which Schmiedeberg made the first experiments upon animals and afterwards Jolly upon man, when it was found that it possesses narcotic properties. Urethan is chemically an ethylic ether of carbonic acid ($\text{NH}_2\text{CO}_2\text{C}_2\text{H}_5$) and consists of white crystals freely soluble in water, of a peculiar, though not unpleasant, taste, and is perfectly odorless. Jaksch after first having made a number of experiments upon animals (rabbits), by which he ascertained that urethan possesses toxic effects when given in doses of half a grain to each kilogram of the weight of the body, used this agent 110 times in twenty different persons, with the following result: When given in doses of one-quarter to half a gram (4 to 8 grains) no hypnotic effect was produced, but when administered in doses of one gram (16 grs.) it invariably caused a sound sleep. It acts principally upon the brain, without, however, having any influence upon the peripheral sensory nerves; consequently it proved of no avail against the troublesome cough in phthisis, and the pains of neuralgia. But as it possesses no disagreeable or dangerous secondary effects it may be given in cases where other narcotics are contra - indicated, as in valvular disease or fatty

degeneration of heart, even in the most aggravated cases. The sleep produced is said to be natural and physiological, lasting until morning and on awakening leaves no unpleasant after-effects. For this reason v. Jaksch is of the opinion that it will be of special service in the practice among children, and also for delirium tremens and other forms of mania. Urethan may be administered without any corrective as it is almost tasteless and freely soluble, but for sensitive individuals any excipient may be added. It may be given in the form of powder or in solution.—*The Cincinnati Lancet and Clinic.*

IS ALCOHOL A FOOD?—Regarding the much disputed fate of alcohol in the animal system, Prof. Cloetta published some little time ago, *Korresp. Bl. f. Schw. Aerzte*, some original investigations. The conclusions he arrives at are—that alcohol becomes converted in the system into carbon dioxide and water; that only a very small proportion passes off as alcohol by the lungs, kidneys and skin, and that nearly the whole of the quantity consumed becomes oxydized. None is found in the fæces or milk. In moderate doses it has no influence on the body heat, and it only lowers it when taken rapidly and in large quantity, the effects being the same whether fever is present or not. In the tissues, in consequence of absorption of oxygen by the alcohol, tissue metamorphosis is checked, and the essential constituents of the urine are diminished. Alcohol is in so far a food, that it protects against too rapid consumption. It is thus an important agent in febrile cases in daily divided doses of 150 to 200 grms. In larger doses its importance as a nutrient and conserving agent recedes, and its effects become injurious, and accumulation of the terminal products of tissue metamorphosis takes place along with increase of uric acid and urea. This fact indicates that oxydation in the tissues has its limits, and that the terminal products of tissue metamorphosis may be produced in other ways.—*Medical Press.*

REGENERATION OF NERVES.—“Fresh Researches on the Regeneration of Peripheral Nerves,” was the subject of a paper communicated to the Academie des Sciences by M. Vanlair (*L'Union Medicale*, July 11). If the process of regeneration be studied in the divided sciatic nerve of the dog, after the lapse of several years it will be found that the initial phases of the evolution are accomplished

in a definite manner, whilst the final stages are by no means uniform. In all cases the lower extremity of the central portion of the nerve exhibits a proliferation of the marginal zone of nerve fibrils, a disappearance of the axial fibres, and a sprouting of new fibres, which project into a new formation of connective tissue. The whole forms at the central end of the divided nerve a "neuroma of regeneration." The further changes vary in different cases. Sometimes the neuromatous formation remains sterile; it stretches a little distance from the divided end, then becomes thinner, and disappears without giving rise to any nerve fibres. Sometimes genuine nerve fibrils are formed. This organization which is often achieved only after a series of fruitless attempts, results in the formation of a longitudinal and systematic arrangement of nerve fibres. The author insists on the importance of mechanical conditions in assisting the regenerative process; the chief mechanical condition is the accurate apposition of the divided ends.—*London Practitioner*.

NITRITE OF SODIUM IN GOUT EPILEPSY.—Dr. J. Mortimer Granville writes to the *British Medical Journal*: "I am obtaining highly satisfactory results in epilepsy associated with gout with the following formula: *R.* Sodii nitritis, gr. xxxvi; sodii hippuratis, 3 iij; infusi serpentariæ, and 3 xii. Misce. Two tablespoonfuls are to be taken three times a day before meals. The dose of the nitrite of sodium may be increased by one grain after each fit which occurs subsequently to the commencement of the treatment. The mixture should be used regularly for about three or four months; the dose of the sodium nitrite being increased, as I have suggested, until it reaches fifteen grains. In a number of cases recently treated in this way, the fits have ceased before the progressive augmentation of the nitrite raised the dose to ten grains. I am very confident that the profession will find the combination worthy of a trial. If there be constipation or a jaundiced appearance at any time during the treatment, I give the following pill several successive nights until the condition is improved: *R.* Iridin., gr. ij.; extracti cascariæ sagradæ, gr. iij.; Misce. Ft. pil."

CEREBRAL SURGERY.—In the *Lancet*, May, 1885, p. 881, Dr. W. Macewen records the notes of a man aged 36, who, in August, 1883, fell down stairs, and was rendered

unconscious for twelve hours. In November, 1883, the patient was admitted into the Glasgow Royal Infirmary, with impairment of power in the left arm, accompanied by muscular twitchings and pricking sensations in some parts. A lesion was diagnosed in the motor convexity of the right ascending frontal convolution, probably due to irritation set up around an extravasation of blood.

In December the author trephined, and found a membrane-like patch over the surface of the brain, involving the arachnoid and pia mater along with the external surface of the gray matter, there was also blood effused into the substance of the brain in the ascending frontal convolution. All this was removed, the bone was replaced after having been broken up in several small pieces, and the wound was dressed with eucalyptus gauze. The patient made a perfect recovery without a bad symptom, and two months afterward was able to do his ordinary work.—*London Medical Record*.

BELLADONNA AND IODIDE OF POTASSIUM.—The fact that belladonna produces dryness of the throat, nose and mouth has induced Dr. Aubut to try it rather empirically to combat certain disagreeable effects of iodide of potash, and he has published his results in the *Lyon Medical*. In three cases of naso-pharyngeal intolerance of the iodide, a mixture of belladonna with iodide of potassium has given good results. He had also the same success in a young man suffering from acute iodism, in whom he made this symptom disappear by preceding the administration of iodide of potassium by the extract of belladonna. The dose was two pills of five centigrams each, of the extract per day, one in the morning, the other at night. In one of the cases he was able to suspend the use of belladonna after some days, continuing the administration of iodide of potassium alone, without producing any intolerance.—*Cincinnati Lancet and Clinic*.

DIRECT MEDICATION OF THE SPINAL CORD.—Dr. J. L. Corning, in an article in the *New York Medical Journal*, has introduced hypodermic injections of cocaine into the tissue between the spinous process of the vertebræ, so influencing the cord that reflex and sensory activity may be almost completely annulled.

PSYCHIATRY.

HYSTERICAL PARALYSIS.—* * * MM. P. Marie and Souza-Leite have recently, in the *Revue de Medecine*, from an observation of cases collected at the Salpêtrière, published a group of instances of paralysis which show themselves to be what we should call purely hysterical, by their rapid transference from side to side, or sudden disappearance, and yet in which the tendon-reflexes varied in all ways, sometimes following the general rules of organic paralysis, and sometimes reversing them. However, when we have sufficiently clearly established the ordinary rules of tendon-reflex in organic paralysis, if we find some cases contradicting them, we may justly suspect them to be without organic origin; but we cannot hope to detect all hysterical paralyses by such tests, as many show symptoms in this respect identical with the abnormalities due to organic disease. The first case in which M. Charcot, in 1865, established by the microscope a so-called typical instance of sclerosis of the lateral columns, was thought in life to be entirely hysterical; and, on the other hand, several cases since observed which showed symptoms not to be distinguished from the first, and where presumed to be organic after the same fashion, have been carefully shown to have, after death, no organic abnormalities. The extent to which morbid nervous symptoms may go without a pathology, should serve the useful purpose of keeping us humble in our claims to have acquired the key to all the processes of the nervous system. On the other hand, the possibility that a case which looks hysterical may possibly be organic, or partly organic, claims treatment by the fear of mistake. To treat a monoplegia of genuine organic origin as hysterical, may look brutal or even criminal. For there can be no doubt that a strong emotion, or a strong imperative, may do away with some symptoms that seem the exact counterpart of others left untouched, but which are in reality very different from them; and herein arises one of the points of difficulty between the quack or the fanatic and the scientific physician. The first may use methods involving impossible hypotheses, or extravagant sentiment; but he succeeds in calling up the strong emotion, or in assuming, in the patient's eyes, the authority for the strong imperative, and thereby attains his ends much more triumphantly than the physician

who will not simulate the emotion he does not feel, or pretend to believe what he knows to be false. There is a great force of emotion that acts in one way at Lourdes, and in another in Exeter Hall, but which may be applied in either case to the relief of discomforts that are none the less real because they are often misnamed. The physician, when science has made his knowledge certain, and his methods of command more varied, may hope to assume an equally effective imperative, or even to find some mental methods that involve no deception.—*The British Medical Journal*, Aug. 22, 1885.

GENIUS OR MADNESS?—The *Medical Times* gives the following particulars about Victor Hugo: His uncle died insane; his brother, Charles Hugo, who at an early age gave promise of great literary talent, became insane before twenty, and spent the latter part of his years in a hopeless state of dementia; and one of the poet's daughters, still living, is the inmate of a *maison de sante*. That in a family thus tainted with insanity a man of immense genius should arise is only another instance of that close hereditary connection between mental disease and highly intellectual powers which Moreau de Tours so forcibly pointed out in his celebrated book, "*La Psychologie Morbide*;" but any impartial reader will find in many of Hugo's best writings a large number of passages which could only have been conceived by a diseased imagination and which bear the indelible stamp of madness. In this respect the French poet widely differs from his great prototype, Shakespeare, who in the wildest flights of his poetical phantasy still remains faithful to sound common sense. The mind of Shakespeare was evidently a healthy one; that of Hugo was not; and if some future Plutarch attempts to strike a parallel between these two great literary giants, he will do well to keep this fundamental difference in view. It may seem ambitious to compare Hugo to Shakespeare, but in this city and at the present day most people seem inclined to place the modern poet above the older bard, an exaggeration which time will doubtless dispel. Yet, as regards the conduct of his private affairs, no man could excel Victor Hugo in that shrewdness which persons "not quite right about the head" so often exhibit. No banker could more carefully have managed his fortune, no politician could have more tenderly nursed his popularity; and the man who left a fortune of more than two hundred thousand pounds sterling was the idol of a

jealous democracy, while the politician who played at fast and loose with all parties was buried in the midst of universal applause. Such an instance of great "wit to madness near allied," the annals of the civilized world have never hitherto placed on record for the edification of posterity.

ONOMATOMANIO. — Messrs. Charcot and Magnan, in *Archives de Neurologie*, thus describe this neurosis: M. L., æt. 60 years, who has led a life frequently perturbed by mental emotions, is suddenly taken with the following symptoms: Whilst out walking one day he meets a gentleman, whom he had formerly known in Rome; he stops, talks with him, and, after leaving this gentleman he endeavors to recall his name, he does not succeed and tries to think of something else, but the desire to know this name constantly recurs, is soon changed into an absolute need. Harassed by this need, he searches his memory without avail. He is now taken with a severe malaise, with oppression and a feeling of lightness in the epigastric region, his face becomes covered with sweat, his hands grow cold, and, fearing he might faint, he rapidly returns home, and in tears, in despair, he walks up and down his apartments with great strides, in a state of extreme anguish. From that time on such occurrences have become quite frequent, and to remedy this he carries a note book with him and hurriedly inscribes the names of all those he meets; this somewhat eases him for a while. But pretty soon these psychical disturbances increase and M. L. is compelled to ask the names of persons he does not know, of every one he meets in the streets, of those who go past him in carriages, and finally of the passengers in a train going by; the impossibility of having such desires satisfied desolates and exasperates him; it makes him furious and forces him to avoid looking at any one and to search for solitary places, finally he remains closeted in his apartment.

This condition is always, Charcot and Magnan say, associated with a family history of mental alienation or other nervous disorder. They all present besides some nervous symptoms, true paroxysms of melancholic delirium, "the harrowing search for the word" not having been the first morbid event of their lives.

NEUROPHYSIOLOGY.

VICARIOUS NERVE FUNCTION.—The central gray matter of the cord is regarded by Schiff, Vulpian, etc., as capable, in the absence of all other parts of the cord, of conveying sensory impressions, these being still transmitted if the gray matter is not absolutely and entirely interrupted in any part.

Schiff would distinguish between the paths of tactile and those of painful sensory impressions. The former he places with Sanders-Eyn in the posterior columns, the latter in the central gray matter. Ludwig and Woroschiloff place the sensory with the motor in the lateral columns, a differentiation of the two not being anatomically possible. The posterior, like the anterior, become only commissural connections between the sensory roots and adjacent segments, and do not constitute the long or direct sensory paths to the brain. Their researches only confirm what other experimenters have found, viz.: That even after destruction of large areas of the lateral columns neither motion nor sensation is absolutely paralyzed in any particular part; whence it is argued that a vicarious interchange of function potentially exists between the different parts of the cord.—*Ferrier, Functions of the Brain.* Pp. 4 and 5.

EDITORIAL.

[The Editor is Responsible for all Unsigned Editorial Matter.]

Professor Golgi's Method of Black Coloring of the Central Nervous Organs.—The latest issue of the *Rivista Sperimentale di Freniatria*, etc., presents the continuation and conclusion of Golgi's splendid work on the "Minute Anatomy of the Central Nervous Organs."

To those who have had the pleasure and the unspeakable advantage of following this work in the series in which it has been furnished in the *Rivista Sperimentale*, and of inspecting the numerous admirable plates by which the text is illustrated, eulogy of its merits must be entirely superfluous, whilst, to those who have not been so fortunate, it is impossible to convey an adequate expression of the disadvantage under which they must labor in the prosecution of the study of the minute anatomy of the brain—certainly, too, all the more formidable, considering the great amount of error involved in numerous preceding treatises.

Golgi, by his exposure of numerous fallacies, which, from continuous servile repetition by his predecessors, have assumed the authority of fossilized traditions, and by his simplified delineations of the *real* forms and relations of the elements of nervous tissue, has rendered to anatomical and physiological science a service of which time and accumulating patient research will establish the true value. The concluding chapter of the work is an exhaustive detail of his methods of coloring brain sections. The excerpt now offered relates only to the method which he used in treating the elements represented in his twenty-four beautiful plates. The following is a faithful translation:

METHOD OF THE COMBINED ACTION OF BICHROMATE OF POTASS. AND NITRATE OF SILVER.

This is, in a certain respect, the fundamental method in the series which I have employed in this special department; the others are but modifications or derivatives, suggested by the desire to shorten the period of the prefatory treatment of the pieces, to render the preparations more

durable, and to modify, in different ways, the results, especially by rendering the reaction more diffused, or by fixing it in a special manner on one or another class of the elements, or on a part of them.

It seems to me not out of place to state at once, that, though, in the processes of technic microscopy which I do not describe, the essential part is effected by the nitrate of silver, yet, these have nothing in common with the method employed for obtaining the brown or black coloring of the intercellular substance of the epithelia and endothelia, and of the connective tissues. In fact, whilst in this method the attenuated solutions of the nitrate of silver are applied directly on the fresh, and almost exclusively superficial, tissues of membranes or membranous tissues of trivial thickness (aponeurotic laminae, substance proper of the cornea, intima of the vessels, etc..) and light has an indispensable share in the reaction, by means of which we obtain the blackening of the compound resulting from the contact of the fundamental substances with the nitrate of silver in any processes, on the contrary, the influence of light has no part, and the reaction results from the gradual penetration of the solution of nitrate of silver into the more or less voluminous pieces that have previously been treated with the bichromate; the black coloring of the different constituent elements of the nervous tissue is the result of a reducing action, which, under the influence of the bichromate, is effected on the salt of silver.

The process intended for the obtainment of the black coloring of the constituent elements of the central nervous organs, consists essentially in two operations:

1st.—*The hardening of pieces in a solution of the bichromate of potass.*

2d.—*Immersion of the hardened pieces in a solution of nitrate of silver.*

1st.—*Hardening with bichromate of potass.* Although, special rules are unnecessary for the hardening, yet we should follow those usually suggested for the obtainment of a good and uniform hardening; indeed, this part of the process requires the greatest care, and all the more, as the period of time necessary for the pieces to acquire that degree of consistence which is requisite for rendering the second reaction successful, varies, as I shall hereafter show, according to different circumstances, and above all, according to the temperature surrounding.

For the first immersion of the pieces, I use either a simple solution of the bichromate, of two per cent. strength, taking care that the reagent is pure, or the formula used by Muller. The quantity of the liquid should be abundant, in proportion to the number of pieces we desire to harden.

The parts of the brain or spinal cord which are to be subjected to the process, must be divided into pretty small segments (from about one to one and a-half centimeter.) It is important to have the pieces fresh; the results are certainly better the fresher the pieces are; it is therefore best to use the brains of animals just killed, though, it may happen that, even twenty-four to forty-eight hours after death, satisfactory results may be obtained. It is superfluous to say that the segments should be cut regularly and in definite directions (differing according to the parts studied), in order that we may be able to appreciate with certainty, the relations of parts and the arrangement of the elements which are to be considered.

In order that the hardening may proceed with some promptitude and become uniform, it will be necessary to augment gradually the strength of the liquid, raising the proportion of the bichromate from two or two and a-half to three, four, or five per cent.

Whether, for giving to the pieces the desired consistence, we gradually augment the strength of the hardening solution, or retain it at the same strength, it is always useful to change, with a certain frequency, the liquid of immersion, in order to avoid the formation of moulds, which, as is known, are readily developed in the solution of bichromate, should the pieces be forgotten for even a short time. With the same view, it is also useful to put into the vessels, along with the pieces, a little of those substances which serve to hinder the development of fomites (camphor, salicylic acid, etc.)

That which is most important in the application of the method, with the view of obtaining good results, but, which is at the same time most difficult to define with precision, is the length of time during which the pieces should be kept immersed in the solution of the bichromate, before passing into the second operation of the process, that is, to the reaction of the nitrate of silver. The time requisite for the pieces to acquire that degree, or rather that quality of hardening, which best enables us to obtain from the succeeding immersion in the solution of nitrate of silver, a fine reaction, diffused over the various elements of the nervous tissue varies according to several circumstances, that is, according to the degree of concentration of the liquid, the state of the pieces, the quantity of the liquid, and the surrounding temperature, and hence, according to the season.

As to the difference that may result from the degree of strength, and from the quantity of the liquid, it is almost superfluous to say that these may be eliminated by following certain constant rules in the preparation of the hardening liquids, and by putting the pieces into closed vessels, and as far as possible, holding a constant relation between the number of the pieces and the quantity of the preserving liquid.

The influence of differences of temperature, as respects the results of reaction, is more considerable; to this influence, indeed, almost all the uncertainties involved in the method may be referred. That I may speak only of extremes, for example, in the warm season after only fifteen or twenty days immersion of the pieces in the bichromate, we may obtain good results, which may continue to appear and to extend with the gradual modifications of which I shall speak hereafter, until thirty, forty, or fifty days (rarely longer). In the cold season, on the contrary, it is difficult to obtain results of any note, before a month or even a month and a-half of detention in the bichromate; the reactions, with inherent gradual modifications, may afterwards continue to appear up to two, three, and even four months of immersion, that is, when the preservation of the pieces has been accurate and in accordance with the rules before indicated. It is almost superfluous to observe that, in the gradual change from the cold to the warm season, and *vice versa*, corresponding modifications also appear in the mode of reaction. Now, to remedy all these oscillations relating to changes of temperature, is not at all easy; above all, because these

oscillations added to the other causes of uncertainty mentioned, act in such a way that the results of observations made on a series of pieces can never be found a very exact counterpart to those made on other series, nor does the expedient of the stove, with a constant temperature, of which I shall speak hereafter, serve to furnish that precision which might be supposed.

The most certain means of remedying all these inconveniences is that of persistently repeating the testings, that is to say, by keeping at disposal a good number of pieces, and from time to time, passing one or more of them into the solution of the nitrate of silver, in order to see whether the piece or pieces are in the desired conditions. Supposing that the reaction is satisfactory, we are then to insist with the greatest care on the continuance of the testings, at different periods, in order to obtain all those gradations of reaction which constitute another of the advantages of the method. It is understood that the various testings should be more or less proximate in time, according to the season. In the warm season, during which the requisite quality of the hardening is reached much sooner, the testings should be closer; on the contrary, in the cold season, during which the required hardening is procured only in the course of months, the testings should be made at periods further apart, even eight or ten days, commencing when, according to the data which I have furnished we may, with some degree of certainty, suppose that the desired conditions have begun to be realized in the pieces.

2. *Immersion of the pieces in the solution of nitrate of silver.* If the different circumstances of which I have spoken, render it impossible to state, in absolutely precise terms, after what number of weeks or days the pieces should be removed from the bichromate and placed under the nitrate of silver, this is no reason for asserting that the method is one of excessive indeterminateness; all these difficulties have been overcome, and we may arrive at the absolute certainty of always obtaining the best results by the simple means indicated, that of persistent testings of each series of pieces. Therefore, in conclusion, the difficulties are about equal to those met with in the employment of all the other processes of impregnation or imbibition by means of carmine, with respect to which, as is well known, it is only after having, by repeated trials, acquired the knowledge, of the qualities of the coloring liquid and of those of the pieces, that we succeed in obtaining prompt and reliable results.

The solution of nitrate of silver which I usually employ is of 0.75 per cent. strength; I remark, however, that, for the success of the reaction, it is not at all indispensable that this formula should be rigorously adhered to. Solutions a little more or a little less strong do not sensibly modify the results. I shall, appropriately, merely add that solutions a little weaker (0.50 per cent.), seem to be rather better adapted, (that is, they give finer reactions, but limited to a few elements), when the pieces have not yet reached perfect hardening, whilst, on the other hand, solutions a little stronger (say one per cent.), seem to be better adapted when we have in hand pieces in which the hardening may be a little too far advanced.

The quantity of the solution of nitrate of silver to be employed, should vary according to the number and size of the pieces which we may wish

to immerge; it should, however, always be relatively abundant. For two or three pieces of say one c. m. cubic, I use, on the average, about half a wine glass of the liquid.

Instantly, on the transfer of the pieces from the bichromate to the solution of nitrate of silver, an abundant yellowish precipitate of the chromate of silver takes place. Now, it is understood that, the formation of this precipitate goes on at the expense of the quality of the liquid, as by the instantaneous formation of the insoluble compound, a more or less considerable part of the salt of silver is neutralized. This naturally changes the relations between the liquid, which should penetrate into the thickness of the pieces, and the internal parts, elements, of the pieces. By this it might indeed happen, that the whole, or the greatest part of the nitrate would be precipitated, and this would cause the reaction to fail more or less completely. In order to avoid such inconveniencies, it is useful to subject the pieces on which we wish to try the reaction, to a prefatory washing with a weak solution of the same reagent. For this purpose I have, with an economic view, been accustomed to make use of discarded solutions, that is, of those previously used for other pieces in which the nitrate of silver had not been completely neutralized. Having effected this sort of washing, until, on putting the pieces into a transparent and pure solution, no precipitation happens, they are finally immersed in a solution having the indicated constituency. After this, the preparation ordinarily requires no more care, for if the solution has been applied in a relatively abundant quantity, in the manner described, the quantity of the reagent is sufficient for the manifestation of its action through the whole thickness of the piece. It is, however, useful to bear in mind that, in some cases met with, especially when we have in hand pieces that, by prolonged immersion in the solution of the bichromate, have been abundantly impregnated with this reagent, after six, eight, or ten hours immersion in the nitrate of silver solution, it is necessary to substitute a new and pure solution for the primitive one. This should be done when the liquid of immersion goes on acquiring a yellowish color, which shows that the solution of the nitrate is in the process of being neutralized, and from this, it might happen that the reagent would lose the required proportions for enabling it to extend its action into the central parts of the pieces.

Having already said that the reaction, by means of which we obtain the black coloring of the diverse elements of the nervous tissue, has nothing in common with that realized under the influence of light which gives the black coloring of the intercellular substances, it will suffice to observe that when they are found in the conditions mentioned, it is absolutely indifferent whether the pieces are exposed to the light or protected from it; the reaction which happens with the gradual penetration of the nitrate of silver into the interior of the tissue, takes place perfectly alike in both instances. The sole rule which experience has made known, as to some advantage with respect to the conditions in which the pieces immersed in the nitrate ought to be kept, is that, in the cold season it is important that they shall be left in a well-heated apartment, and placed at a little distance from the heating stove of the laboratory.

In the conditions herein pointed out, the pieces ought, as a rule, to be

kept for twenty-four to thirty hours, and in exceptional cases even for forty-eight hours. The period of twenty-four to thirty hours should be regarded as the rule, but, whenever they may be found in an opportune stage of hardening, the pieces usually present a well advanced reaction in two or three hours. In these cases it may be said that, at least in the more superficial strata, the reaction commences suddenly, and extends gradually, as the liquid is infiltrated into the tissue, even into its innermost layers. As regards the exceptional cases, in which it is useful or necessary to retain the piece under the influence of the nitrate of silver for forty-eight hours or longer, and in which it will besides be useful to change the solution a second time, the rule as to what should be done will be taken from the examination of some microscopic sections of the superficial parts of the pieces, by seeing whether the reaction has or has not been realized, and eventually, it will also be taken from the yellowing of the liquid, which indicates that the reaction is still in neutralizing progression.

As to the rest, I now observe that, even an indeterminate continuance of the pieces in the nitrate of silver, for a series of days, weeks, or even for months, is not in any way damaging; this is besides, a convenient means of preserving those pieces which have to serve for a special study, to be made when convenient.

One of the interesting particulars which I am describing consists in this, that, whilst the black or brown reaction does not fall preferentially on one rather than on another class of elements of the nervous tissue, but may be realized on all of them (different classes of ganglionic cells, nervous fibres, elements of neuroglia, elements of vessel walls), it happens that the contemporary coloring of the whole of these elements occurs in our method only exceptionally, that is, only when the pieces may have a certain quality of hardening, which can be detected only by a great number of testings. The reaction is, on the contrary, as a rule, partial, that is to say, it falls preferentially on one or another sort of elements, or one or another stratum, with gradations and combinations that may almost be said to be infinite.

This peculiarity, far from being an inconvenience, is truly another of the advantages of our method. In fact, should the reaction be realized constantly on all the different classes of elements at once, there evidently would be such an inextricable confusion, as to render impossible any delineation of the positions and relations of the several parts. On discovering, for example, that, in certain pieces undergoing the black coloring, the nerve cells, in others the cells of the neuroglia, or some vessels or some groups of nerve cells are prevalently colored, it is evident that, by comparing numerous preparations we are, in a certain measure, enabled to detect divers peculiarities of position and relation in different classes of elements and organization of the various regions conjunctly considered; and so much the better, the more such combinations and gradations are also realized with respect to the different strata and zones into which the various provinces of the nervous system are wont to be divided; for example, as respects the cerebral cortex, the reaction, with the different combinations mentioned, sometimes prevails in the superficial stratum, or in the middle one, or instead, in the deep one.

As respects the mode of development of the black coloration, or the succession of the reaction in the various classes of elements, there certainly is a rule, and it would be of advantage to succeed in defining it with precision, in order that we might be able to obtain at will, one or another result; but this attainment is extremely difficult, if not impossible. This difficulty is easily understood when we consider that, in order to cause the results to vary, they are influenced in addition to the circumstances before pointed out, also by those which are related to the diverse conditions in which, because of the non-uniform hardening action of the bichromate, the pieces must, of necessity, be found in their various strata. The same pieces, in fact, usually have a degree of hardening progressively less from the center towards the surface; it happens, however, that several of the combinations and gradations before mentioned may be found in the same piece. We may at all events hold that, as regards the mode of development of the reaction in the various elements of the nervous tissue, in the same series of pieces successively subjected to the action of the nitrate of silver, the following rule approximately obtains; there are colored successively:

1st.—*The fascies of nervous fibres.* Along with the coloring of the nervous fibres there frequently is that of some rare isolate gangliar cells, here and there disseminated in the gray substance.

The coloring of the nervous fibres has, at first, but little fineness, the reaction is, I would almost say, tumultuous; by degrees, as the hardening progresses (but within a period of time more or less short), the reaction goes on acquiring fineness, and we may then see the nerve fibres (cylinder axes) composing the fascicles, and from the fascicles isolate fibrils emanating, of which we discover, at a glance of the eye, all the most minute particulars of course and ramification.

2nd.—*Gangliar cells.* The gangliar cells of the more superficial strata are always the first to undergo coloring (for example, in the cortex, the small gangliar cells of the peripheral zone). Along with these, however, some solitary or irregularly scattered cells of the inner strata are colored. In every case it passes then step by step from a reaction prevalently falling on the fibres, to that prevalently interesting the cells, and, as respects the latter, it is finally observed that the black reaction progresses gradually spreading and advancing from the superficial to the middle and the deep strata. It successively then happens that, whilst the reaction becomes complete in the cells of the deep strata, that of the superficial strata becomes always more limited.

As for the fibres, so for the cells, the reaction is at first rather coarse, and but little suited to show clearly certain more minute and interesting particulars; e. g., the nervous prolongation is seldom colored to any great extent from its origin; usually indeed, but a short tract can be discovered, so that neither its course, nor the ramifications, now few and again innumerable, to which it gives origin, are observable; with the gradual progression of the hardening, the reaction of the nervous cells becomes more perfect, interesting, even to the minutest subdivisions, both their protoplasm and their nervous prolongations.

3rd.—*Cells of the neuroglia.* A reaction interesting the cells of the

neuroglia may be said to be verified from the outset to the end of the phase, in pieces suitably hardened by the bichromate. In fact, as well in the period in which the black coloring prevails in the fibres, as in that in which the coloring of the cells is gradually extending, we may always discover either isolate cells of the neuroglia, or groups of them presenting the characteristic reaction (coffee-brown or yellowish color), derived from the action of the nitrate of silver; but it is always at a period of hardening a little more advanced, that the reaction on this class of elements becomes diffuse and fine, so as to show clearly their typical form and their relations. The reaction of the neuroglia is wont to continue for a long time, even beyond the period useful for the coloration of the gangliar cells.

With regard to the gangliar cells, it is further of importance to state the fact, that the finest reactions, interesting in a special manner the nervous prolongation, are usually equally verified at a period of time of hardening rather advanced, that is, when, along with the progression of the reaction in the neuroglia, that of the gangliar cells becomes limited. And it is exactly in the cells isolately blackened, that the very fine reaction of the unique functional prolongation being presented, this part may be seen in all its minute changes of progression, and with its more or less numerous ramifications. As to the rest I insist on repeating that, in order to verify in a given part of the nervous system, all the phases of the reaction, it is necessary to obtain the same reaction in a series of pieces, which have been subjected to suitable treatment at different times.

Having so circumstantially fixed the fundamental rules of the process, it would be absolutely superfluous to go into further details as to the differences that may still be realized with respect to the different provinces of the central nervous system (the cerebral cortex, the so-called ganglia of the base, the cerebellum, the spinal cord). In this relation I will merely observe that, under parity of circumstances, the pieces of the cerebral cortex are wont, by immersion in the bichromate, to reach that quantity of hardening which is requisite to enable us to verify in them the desired reaction a little sooner than in the cerebellar convolutions; that, in the latter, the same result is obtained a little earlier than in the spinal cord; and lastly, that the so-called ganglia of the base attain the suitable degree of hardening somewhat later than the before named parts.

One final observation. Taking into account the particulars of the process which I have been detailing, it is understood that we can, with sufficient frequency verify the fault, that the reaction interests only a part of the pieces, which may, for example, be wanting in the other superficial strata, in which, in fact, more frequently than elsewhere, there is found only an irregular precipitation, and, on the contrary, the reaction exists in the deep strata, or *vice versa*. Bearing this in mind whenever it may happen that, in the first sections tested, pertaining to the superficial strata nothing of interest is presented, we are not to hold without reserve that the reaction has failed; it is frequently the case that preparations, in which the reaction is scarce, and in which only a few isolate cells are met with, prove to be among the most demonstrative, as regards the particulars relating to the individual elements." *Rivista Sperimentale di Freniatria, etc., Anno. 9. Fasc. 2 and 3.*

The remainder of the article describes Golgi's methods of treating the preparations before and after mounting, but this part must be left untouched for the present, as the translator feels uncertain whether many of the readers of the *ALIENIST* might deem the subject so interesting as to compensate for the time devoted to the perusal. Two other methods of coloring are also described, which certainly would be read with profit by those inclined to such studies, but the question is, how many, and where to be met with?

The Case of Louis Riel.—

The recent Canada rebellion of half-breeds and Indians was started and kept alive by a half-breed named Louis "David" Riel. After several fights with the volunteers, his bands were scattered and he was made prisoner. He gave himself up, but the fighting leaders escaped into the United States. Riel was tried for treason last July, at Regina, in one of the territories, and the defense was insanity. Riel had been the leader of a rebellion at Winnipeg, in 1870, but an expedition under General Wolseley scattered his forces and he escaped. At the recent trial it was shown that he had been in two asylums as a patient. Once in Longue Pointe, Montreal, and once in Beauport, Quebec. It was shown that on these occasions he had been afflicted with megalomania. His ideas are that he is to be the great centre of religious and political movements in the world. He is a prophet, and can foretell future events. He is yet to establish a new papacy and pope in St. Boniface, Manitoba. He is to divide the northwest into seven kingdoms, among divers nationalities, and over this heptarchy he is to be supreme ruler. Christ is ever present with him in person, and he has set chairs for Him to sit on and has laid by food for Him to eat. During the fighting he ran about holding aloft a crucifix and kept constantly calling on the Trinity. These and many other delusions were certified to at the trial. Among ignorant Indians and half-breeds he was looked up to as a man inspired, and being educated and eloquent his influence was great. The principal leaders of the rebellion made a figurehead of Riel. He is indignant at being called insane and wished to discharge his counsel for putting in that plea. It would destroy his idea of greatness and power to declare him a lunatic. Like all such, he possessed a good deal of shrewdness and cunning. The three experts called on the trial were Dr. Roy of Quebec, Dr. D. Clarke, Toronto, and Dr. Wallace Hamilton. The first two stated that, assuming the testimony to be correct, there was no doubt of the man's insanity. Dr. Clarke said although that was his impression, yet it was absurd to expect any medical man to definitely come to a conclusion of the mental condition of such a man with a cursory examination. Dr. Wallace could see no insanity in him after half an hour's examination, but would not say he was sane. The jury brought in a verdict of guilty with a recommendation to mercy. The jury was not convinced of Riel's sanity.—[*Am. Jur. Ins.* Oct. 1885.]

Whatever his character may have been in the field as a marshal, in prison he fell little short of a religieuse. His time was devoted assiduously to prayer. When given his walk on the open ground adjoining the guard-room for an hour each morning, he has paced back and forth with his hands clasped together in front, his head bowed, with prayers issuing from his lips, voiced in either the French or Indian Cree tongue. Soon after his capture by the Canadian troops he professed to throw off his allegiance to the Roman Catholic Church and took the guise of a prophet, claiming to see visions and foretell events. Latterly he sought the spiritual comfort of Père Andre, from Port Albert, close to the scene of the recent rebellion. Much of his time before his death was spent in writing out predictions of the future, and defense of his conduct in leading the half-breeds twice to war. These papers have been intrusted to Père Andre. Before his execution he received a letter from his aged mother, which affected him visibly. He accepted his doom with suavity of speech and nonchalance of manner, claiming that his motives had been those of a patriot. Tragically striking his breast he said: "I have only this to leave, and this I tendered to my country fifteen years ago, and am willing to give it now." His final hours were passed in the sole company of his spiritual adviser, who performed masses for him during the early portion of the night. Riel then laid down and appeared to sleep soundly, awakening at an early hour, and again resuming his devotions.

Riel was executed on the scaffold at the Barracks of the Mounted Police force, near the city, for high treason against the Queen of Great Britain, at 8:23 o'clock a. m., mountain time, November 16, at Regina, W. T. As the white cap closed over him, he was heard distinctly repeating his prayers.

Rev. Mr. McWilliams, who assisted Père Andre in his attendance upon Riel during his last hours, and who was a classmate of the rebel at Montreal College in 1860, is firm in the belief that Riel was insane, and so expressed himself before Riel's execution. In this belief he addressed a letter in Riel's behalf to the Governor-General of Canada.

Riel's letters to his father confessor serve to throw more light on his mental condition. Riel's handwriting is bold and moderately regular. He handed Father Mc-

Williams the following, November 9, four hours before he heard of his fate :

REGINA JAIL, N. W. T., November 9.—On the 4th of November, 1885, it was revealed to me, "your death is reprieved ; there are ten lawyers." On the 9th. in the morning, it was said to me from above : "The Council will meet Tuesday on your indictment.

[Signed],

LOUIS "DAVID" RIEL."

These happenings transpired as he indicated on his paper. All his letters are signed Louis "David" Riel, the word David invariably quoted. The following letter was written, the reverend gentleman said, while Riel was laboring under excitement :

REGINA JAIL, N. W. T., November 9, 1885.—I am most acknowledging towards you, my God, for having fulfilled the promise which you never fully made to me through your beloved servant, Ignace Bourget, that you would not abandon me on account of the mission which you have goodly given me to fulfill in all points.

[Signed],

LOUIS "DAVID" RIEL.

The following was written the same day :

REGINA JAIL, N. W. T., November 9, 1885.—For asserting to alleviate the wrongs of my countrymen I am to be — but I will not say it, for having done what I could to better the condition of the people at large, as an aboriginal, as an American and as a prophet, will I lose my temporal life. [Signed],

LOUIS "DAVID" RIEL.

About 7:30 o'clock in the morning, he wrote the following :

REV. C. A. McWILLIAMS: My good thanks for assisting me in different ways, principally by your prayers. [Signed],
November 16, 1885.

LOUIS "DAVID" RIEL.

Twenty minutes before he went to the scaffold he wrote in French, this final missive, in a clear, bold hand :

What there is too presumptuous in my writings must say that by these presents I subordinate it entirely to the good pleasure of my God, to the doctrine of the Church and the infallible decision of the Supreme Pontiff. I die a Catholic, and in one only true faith.

[Signed],

LOUIS "DAVID" RIEL.

16th November, 1885, Regina Jail.

Father McWilliams declares he never witnessed a more resigned feeling than was shown in the case of Riel during his last hours.

Thus lived and died this insane enthusiast who mistook rebellion for patriotism and who, while yielding to wrong and probably morbid impulses, knew the nature and quality of his acts, and had doubtless the same power to

refrain from them that he had to surrender when overpowered.

The Physiology of Disseminated Sclerosis.—

The *Journal of the American Medical Association* thus editorially discusses this subject:

DR. JEAN GASTERATZVY reported about four years ago the results of some experiments on dogs and cats, which show that the trembling observed in disseminated *sclerose en plaques* appears, as regards its origin, to be a consequence of a lesion of a certain extent of the antero-lateral roots of the spinal cord, which transmit the impressions which determine voluntary movements. He now reports, in *Le Progress Medicale*, of December 26, the results of experiments made to determine the source of the tremblings in cases in which there is no lesion of the cord, setting out with the supposition that they are the result of some alteration of certain portions of the brain, of the grey matter of the cerebral hemispheres, for example.

In some of his experiments in which he pricked the antero-lateral roots of the lumbar plexus, in order to obtain intentional trembling, excitation of the psychomotor centers with a faradic current, after anæsthetization of the animal, caused marked trembling, not only in the posterior extremity, the nerves of which issued from the cord at the level of the parts irritated, but also in the anterior extremity, the medullary centre of which was in a normal state. Having noticed this phenomenon, he thought that the trembling in the anterior extremity under these circumstances was, perhaps, the result of chloroformization, or due to the enfeeblement of the physiological functions of the psychomotor zone, caused by the chloroform. This hypothesis was confirmed by the fact that he was obliged to apply a faradic current of much greater intensity than that usually necessary to cause certain movements of the limbs in a non-chloroformed animal.

The hypothesis was proved to be correct by the following experiments: The psychomotor zone of one side is laid bare, the dog not being narcotized; the psychomotor centre of one extremity is then irritated by a faradic current from a Dubois-Raymond apparatus. The animal is then chloroformed, and the same point in the psychomotor region is again irritated. This must be done very carefully in order to avoid injuring the centre, the electrodes being applied only two or three times and very lightly. In the first experiment irritation of the psychomotor centre of the anterior extremity caused feeble flexion of the left leg with the bobbins at a distance of 200 mm.; at 150 mm. the flexion was very strong. The animal was then chloroformed, and five minutes afterwards there was no movement with a separation of 200 mm., and only very feeble flexion with 150 mm. separation. After twenty-five minutes' irritation of the centre of the same extremity gave rise with 150 mm. separation, to feeble flexion with tolerably well marked trembling. Thirty-five minutes after anæsthetization, irritation of the same centre caused, at 150 mm., very feeble flexion with very marked trembling in the left leg. Other experiments were made in the

same manner, which showed that under the influence of chloroform the excitability of the cortex of the cerebral hemispheres gradually diminishes, the movements become enfeebled at the same time, and the trembling then appears.

In another experiment the psychomotor zone was laid bare on the right side, the animal not narcotized. The centre of the anterior extremity was touched, with the bobbins 250 mm. apart, which immediately caused an epileptic attack with dilatation of the pupils, and spasms which were at first tonic, but then became clonic. After complete chloroformization, with a separation of 50 mm., irritation of the same centre caused irregular and interrupted contractions in the left extremity, without an epileptic attack. This experiment well illustrates the degree to which chloroformization enfeebles the excitability of the grey matter of the hemispheres, since the bobbins had to be brought 200 mm. nearer together than before the animal was chloroformed. In these experiments with faradic currents only the grey matter was irritated; and it is seen that the intensity of the current had to be increased in order to obtain certain movements when the animal was anaesthetized. It must therefore be concluded that the excitability of the psychomotor zone was diminished by the influence of the anaesthetic. On the other hand very pronounced trembling appeared only after the animal was chloroformed, which seems to show positively that it was due to the enfeeblement of the functions of the psychomotor centres.

The practical deduction from these experiments are of great importance in showing that these tremblings have their seat of origin in the grey matter of the cerebral hemispheres. As an example, Gaster-natzvy cites the paralytic trembling seen in persons affected with progressive paralysis of the insane. The essential lesion in this disease consists in part of peri-encephalitis; and it is well known that this pathological process causes atrophy of the cortex, with disappearance of the nerve elements and proliferation of the connective tissue, pigmentation, etc., as shown by Meynert, Huguenin, Magnan and others, and it is probable that these products cause irritation of the nerve cells of the cortex before they have entirely lost their functions. "On the other hand the paralytic trembling, one of the more important symptoms of this disease, furnishes us certain signs which show its dependence upon the grey matter of the cortex: 1. This trembling is general, and its existence in all the voluntary muscles of the body shows that the lesion which causes it is found in a part of the nervous system with which all these muscles are in communication; and the grey matter of the cerebral hemispheres in (is?) this region. 2. This paralytic trembling always accompanies other symptoms which, as is known, undoubtedly depend on certain lesions of the grey matter of the brain; for example, the symptoms of progressive dementia, analgesia, epileptiform attacks, vaso-motor phenomena, etc. 3. At the commencement of the disease the trembling is scarcely sensible during slightly extensive delicate movements, which are ordinarily the most complex and most co-ordinated; as the disease gradually advances trembling occurs. Finally,

in the last period of the disease the trembling causes complete paralysis of all psychomotor or voluntary movements. Consequently a relation exists between the paralytic trembling and the other symptoms of the disease on the one hand, and on the other with the progressive development of the pathological process of the cerebral cortex, which constitutes the essential lesion of the disease.

All of the clinical analogies sustain the physiological conclusions of Gasternatzvy as to the *locus morbi* of the tremors; the tremblings of alcoholic delirium of sudden fright, the tremors of opium withdrawal after chronic toxic meconism and ordinary, *anti* and *post* paralytic chorea.

The Trial of Mrs. Dudley.—

Unexpected verdicts in criminal trials have long ceased to create much surprise in this country. That which caused many persons to look for a different result in the case of this woman who shot down the man "Rossa" in open daylight, was the difficulty of recognizing insanity at all in some cases which exhibit wonderful calculation, adaptation of means to ends, apparent self-possession, and considerable reasoning power, combined with mother wit in word-fencing with lawyers. All this, however, is not incompatible with such a fixed mental disorder as may give a persistent and grave determination to the volition and personality of the individual. Besides, it is well known that such persons as a rule indignantly repudiate the allegation of their own insanity, even when, like Mrs. Dudley, they have to admit the fact of a previous confinement in an asylum. This fact undoubtedly supplemented by Dr. Macdonald's very positive testimony, had great and decided weight with the jury, however coherent and rational her own conduct and language in court may have appeared. Very often the very brilliancy and vivacity of such a prisoner, running occasionally into eccentric or quick-witted drolleries or vituperation, together with the constant tendency to interrupt, to assert oneself, and to take part in all discussion going on, however natural it may seem from a lay point of view, may be simply an expression of overweening self-conceit and inordinate love of notoriety, due to a morbidly exalted mental state common in chronic insanity. The coarser implements of a judicial investigation, as we have before this had occasion to observe, are hardly equal to the determination of the more subtle boundary lines between perfect sanity and the "mind diseased." On the whole, although this may be one of the "border line" cases that leave room for some controversy, we are disposed to agree with the conclusion expressed by the *New York Tribune*, that "surprising though it appears, the verdict was not incompatible with the conscientious performance of their duty by the jury."

As part of the literature of this notable case we may append the following letter which was written by the prisoner to an inmate of the Utica Asylum the day before her trial:

JEFFERSON MARKET PRISON,

June 21, 1885.

DEAR ———:

——— asked me to write and let you know that the Supreme Court decided against her, and she was sent to the penitentiary on the 9th of this month. You must put "committed on the 9th June" on your letters when you write to her. I feel very sorry for her, and my counsel has promised to do all in his power to obtain her pardon, and I fancy that he will succeed in so doing.

The workmen have nearly demolished all our side of the Tombs, and all the women are in the Magdalen. I was not at all well and so the Warden sent me here as soon as they commenced pulling down, and I like it much better.

My trial is to come off to-morrow, but even if I am acquitted on the ground of insanity, I do not expect to be sent to Utica, as I prefer to go to Middletown Asylum. It is much smaller, and nearer to New York, so I shall not have the pleasure of seeing you in your mansion.

——— has been convicted on one indictment and will be tried on another one this week.

——— is still gliding gracefully about the Tombs, and I am waiting patiently for the penitentiary, asylum or liberty.

Thanks for the paper, but for mercy's sake let me have a little rest from my esteemed friend and distinguished victim. I am bored to death hearing his name, and dread the revival of the whole affair at my trial. With best wishes, I remain, Yours sincerely,

LUCILLE YSEULT DUDLEY.

The woman has since been consigned by the Judge to the Middletown Asylum. (*Am. Jour. of Insanity*, July, 1885.)

A similar method of reasoning and a far less charitable construction of the evidence would have established the insanity of Guiteau at his trial. But the exigencies of the public weal were different then from those at the time of the Dudley trial. The grave doubts of Guiteau's sanity which forced themselves upon the minds of the profession and people at the time of that famous trial and passed into settled conviction, irrevocably confirmed by the insane gallows scene, were excluded by the vengeful bias of the impassioned hour when he was on trial for the murder of President Garfield. The editor of the journal from which we extract the above editorial and the physician, whose "very positive testimony had very great and decided weight with the jury," both testified to Guiteau's insanity. Would they do so now?

Craniotomy.—The Papal and talmudical views of craniotomy have been referred to us for our opinion. It is well known that craniotomy is generally practiced by the profession in cases where a choice is forced between losing two lives and saving one by hastening the death of the other, the other being the unborn fœtus, which would inevitably perish or be mentally and physically maimed for life in the parturient throes,

which destroy the mother. The Inquisitors - General at Rome voted unanimously against the practice, on the ground that the taking of a human life could not possibly be justifiable, except as a legalized punishment for crime. This finding was formally referred to and promulgated by the Pope. The Rabbinical view on this question is that "it is justifiable to kill the unborn infant in order to save the mother as her life precedes its life." Such operation is, however, not permitted after the infant has already been partially born. In the latter case one human life must not be sacrificed for another. The reason of the distinction between these two cases is that the unborn infant is not yet a distinct personality with an independent life, hence the duty of saving the mother's life is to prevail, while in the second case its individuality is established, hence the legal principle must apply that one life must not be destroyed to save another. Dr. Meiziner, who asks us for our opinion, thinks the Rabbinical view in this case is in full accordance with common sense and with the highest regard for the sanctity of human life. We do not think either circumsized or celebrate ecclesiastics are the best judges of this subject, and purely medical matters, *in vagina* are especially improper *res adjudicatæ* for Popes and Cardinals. It may be heretical to question their infallibility in matters touching the viability of the fœtus fastened in the pelvic straits so tightly as to demand craniotomy in order to make the exit of the fœtus, though lifeless, a possibility and save the imperilled life of the mother, but *materies in utero et in vagina ex-cathedra sunt*. In the throes of a labor which is so violent as to suggest craniotomy to the discriminating *accoucheur* as the only safety of the mother, the fœtus is practically dead already in most instances, and it were a crime against humanity to permit a creature maimed for life by cerebro-spinal shock and distortions, to live, if life were possible, after the death of the mother and Cæsarean section. At all events, in a crises so grave involving the necessity of a radical medico-surgical procedure, a council of physicians would more likely reach a correct conclusion than one of ecclesiastics. The crucified Sufferer on Calvary, never meant that woman should be doomed by the Church to die a vicarious death for the sin of motherhood. It is fortunate for the idiot asylums and for the asylums for the insane, that this fallacy of the infallible church has had but little weight with the medical profession.

The Neuropathic Relations and Neurotherapy of Cholera are becoming to be recognized across the ocean, and the views expressed by this JOURNAL will not appear so ludicrous after they are "imported from Europe:" "Prof. Peter, of Paris, thinking that the disease is an irritation of the solar plexus, with a hyperemia of the digestive tract, recommends every possible means to combat this irritation: vesication of the epigastrium, continuous current—one electrode on the stomach and the other in the rectum (a current of twenty-five milleampères was used), dry frictions, alcohol; for pain, hypodermics of hydrochlorate of morphia; in plethoric persons, leeches; and, finally, Prof. Peter spoke at length of the use of Dr. Chapman's ice-bag. He had used it in ten cases, with a result of ten cures. The ice-bag is a triple rubber bag, about twenty to twenty-four inches in length and about four inches wide. Each part is filled with fine pieces of ice, and it is applied to the back along the spinal column. Its application should be constant, so the ice must be changed from time to time. The vomiting was stopped by its use almost at once, while there was a great diminution in the cramp. The patients warmed up, the pulse came back, and all the symptoms gradually went away. Dr. Chapman is an English physician who has practised now for a number of years in Paris, but was formerly in India, where he had cholera to treat. He has just published a book entitled, "Cholera Curable." Some of your readers may remember his former recommendations of the ice-bag for sea-sickness. Dr. Miquel, whose interesting work here in regard to atmospheric germs is so well known, has a late article on the subject of "Cholera and Atmospheric Bacteria," comparing the number of bacteria found in the air during the last epidemic and those before and after. It was seen that the number was greatly increased during the epidemic, and grew with it, falling afterward. A series of tables are given to prove this fact. The more the air was charged with bacteria, the worse the cholera was; so that a microscopic analysis of the air leads to this hypothesis, that Indian cholera has for its morbid agent a bacteria; that this bacteria can take as a vehicle, the air, and so infect human organisms directly or by means of entering the water or food we use. Temperature does not seem to affect the air-bacteria. The conditions that preside over their generation are *heat* and *humidity*; those that favor their dissemination are *dryness* and *wind*."

Drysdale's Theory of the Cause of Migraine (*Vide London Practitioner*) is, that it is due to the accumulation in the blood of a peculiar poisonous substance allied to creatin, because of the close resemblance of the symptoms produced by it to those of uræmic poison.

He compares the sleep that follows the headache and vomiting to uræmic coma, differing from it only in degree.

This is hardly a tenable comparison. He recommends, in the hypothesis, severe and regular exercise as preventing the accumulation of this (? causative, so-called) poison in the organism.

The fact is that rest restores the patient and a prolonged and tranquil sleep is the *sine qua non* to recuperation. Brain waste and mind worry are the chief predisposing factors, and the value of physical exercise admits of a different explanation from the one offered by Drysdale, though, this does doubtless facilitate the elimination of pernicious products of disintegration. Migraine victims are usually physically as well as mentally active people; though their physical exercise is mostly in-doors and not up to their capacity and natural demands of their physical power. The plethoric, the lymphatic, the lax-minded and the lazy-bodied people, are not its favorite victims. To cure the tendency to recurring migraine, regulate the habits of its usually lean victim, who, like Cassius, thinks too much, so that he will fret and worry less and grow fat, and you accomplish the chief indication for its treatment. Migraine disappears after its victim learns to rest more and worry less, and to take the affairs of life easier, and to live with a better surplus of nervous energy for withstanding the central vaso-motor shock of wet feet or mental waste or worry.

A Common International Basis for Statistics

Relating to the Insane with a View of Determining Upon a Basis of Classification of Mental Diseases.—At the International Congress of Psychiatry and Neurology, held at Antwerp, Belgium, in September last, on the invitation of the Society of Mental Medicine, of Belgium, after a full discussion, decided to nominate an International Commission, charged with the duty of agreeing upon a "Classification of Mental Diseases," upon which all countries might unite. The members of this Commission are as follows: D. Hack Tuke, of London, for England; Dr. Guttstadt, of Berlin, for Germany; Prof.

Dr. Benedikt, of Vienna, for Austria; Dr. Magnan, of Paris, for France; Prof. Dr. Valdemar Steenberg, of Copenhagen, Denmark, for all the Scandinavian countries; Prof. Dr. Mierzejewski, of St. Petersburg, for Russia; Dr. Ramaer, of *The Hague*, for Holland; Dr. Sola, of Buenos Ayres, for South America; Clark Bell, Esq., of New York, for North America; Prof. Dr. L. Wille, of Basle, for Switzerland; Prof. Andrea Verga, Senator of Milan, for Italy. The members of this Commission were requested to obtain the views and co-operation of the societies of their respective countries interested in these subjects, and to communicate the result of their labors to the Belgian Society of Mental Medicine.

Apepsia Nervosa.—At a recent meeting of the Medical Society of London, Dr. Stephen Mackenzie read a paper on gastric ulcer, detailing two cases where the symptoms pointed to gastric ulcer, while the post-mortems showed no evidences of disease of the stomach. One of the cases had been diagnosed by several physicians as gastric ulcer.

In the discussion which followed the paper, one of the members took the view that, in some cases of acute perforating ulcer, the ulceration was merely an incident in the course of *apepsia nervosa*, while Dr. Thos. Stretch Dowse maintained that perforating gastric ulcers were generally of nervous dystrophic origin.

We are inclined to think Dowse's view the correct one, both in perforating gastric ulcer, and in the perforations about Reyer's patches which take place in typhoid fever.

The profound neuratrophia which attenuates the tissues and reduces resistance as in typhoid, is a better explanation of the *possibility* of perforation than any other. The plastic products of active inflammation are not present in the ulcerations which accompany *apepsia nervosa*.

Gun Shot Wounds of the Brain.—Dr. Wm. F. Fluhrer reports the details of the case of Bruno Knorr, who was shot in the forehead, the bullet entering an inch and a quarter above the upper level of the eyebrow, passed in a straight line through the brain, and was then deflected to its place of lodgment, an inch and a half to the left of the posterior median line. The bullet cut upon the superior longitudinal sinus and penetrated the brain in

the first frontal convolution, just at the edge of the hemisphere, where the convex surface joins the inner surface. Traversing the brain substance of the hemisphere, it emerged and lodged in the superior parietal convolution. The distance between the two openings in the brain in a straight line was six inches and a quarter. The injury was inflicted January 24th, 1884, and he left the hospital and went back to work June 30th, 1884.

Knowledge, Oct. 2d, 1885.

This case resembles the case of Shotwell Ayres, reported to the Medico-Legal Society by Drs. Harvey and Hill, of Dundee, N. Y., who lived after receiving a ball in his brain and resumed his calling.—*Medico-Legal Journal*, Vol. 3, p. 108.

Cocaine—Our discerning contemporary, the *Kansas City Medical Record*, thus records its convictions concerning this intemperately “boomed” drug, whose career as a panacea to depopulate the inebriate asylum, cure melancholia and banish opium addiction and intemperance from the land, has about ended.

“Duty compels us to call a halt on its indiscriminate use, either by hypodermic injection or by internal administration. It is going to be a worse habit to control when formed than either opium, chloral, or alcohol.

Again, it is a most powerful heart-depressant, and will, we believe, in large doses, be a powerful narcotic poison. We submit, therefore, that the profession use it with more care and judgment. Its proper sphere being probably local anæsthesia, with benefit internally, and by hypodermic injection in but a limited number of cases.”

Who Owns the Prescription?—Apropos of the editorial in the last number, we give the ruling of the Supreme Courts of Massachusetts and New York on the subject:

“The question before the Court seems to be very simple, indeed. A patient applies to a physician and receives from him certain advice, for which he tenders a fee. The physician hands a piece of paper to the patient, purporting to be a *written order* for certain goods, called drugs, which order is filled by a merchant or apothecary. The payment of the fee, and the delivery of the goods, or drugs, terminates the verbal contract, and the druggist keeps the prescription as evidence that the *contract* has been fulfilled, as far as he is concerned. The druggist can, if he so *please*, on his own responsibility, renew the drugs, for he is but a merchant, and has a *perfect right* to sell drugs to any one and in any shape.

He need not keep the prescription, nor is he bound to give a copy, but, should error occur, he has no protection in case of suit."

Luciani e Seppilli.—*Le Localizzazioni Funzionali de Cervello.*—The readers of the ALIENIST who have so frequently had the opportunity of becoming acquainted with the writings of eminent Italian specialists, and especially with those of the two distinguished personages whose names are at the head of this notice, will not be disposed to reject the assurance, which a careful study of the above work, on the "Functional Localizations of the Brain" warrants, that it is one of very high—indeed of unusual merit. The authors—one as a patient and most painstaking physiological experimenter, the other as a clear-sighted and cautious clinical observer, have brought to the subjects of brain physiology and brain disease, a truly rich contribution. It would be no less a benefit to the medical profession of America, than an honor to our country, and a well-deserved tribute of respect to our foreign brethren, that the book should appear here in an English translation. It has already found its way into the German language, and we understand it will also appear in French. Luciani has thrown much new light on the interesting subject of the *cerebral centres*, and whilst he fearlessly and frankly calls in question some of the theories upheld by preceding authors and addresses cogent proofs of the views held by himself he never permits himself to be betrayed by his scientific zeal into any unbecoming allusion to what he regards as errors in the works of others. His acquaintance with the whole range of cerebral physiological literature is truly ample, and the candor displayed by him in his criticisms entitles him to the respect of all who may regard him as an antagonist.

Of the merits of Seppilli, we require to say little. Our pages have long afforded readers the advantage of perusing his able psychiatric productions. He is a close observer, a clear reasoner and a faithful recorder of instructive clinical facts. He may well be said to have traversed the wide field of alienistic literature. If there is any fault to be found with him, it is, perhaps, that of bestowing too much of attention on the writers of other nations, who would seem to be unable to condescend to even an incidental allusion to those of Italy. So much the worse for them. They must be either narrow-minded, or stupidly haughty, or perhaps both, for presumption is the usual compassion of cultivated ignorance, and no

ignorance is more disgusting than that which is rooted in national vanity. But Italy is now able to walk alone. She needs neither to court the smiles, nor to dread the frowns of outsiders. In every branch of science she now stands in the front ranks of the noble host of devoted searches for truth. She rocked the cradle of anatomical science; she now cherishes and invigorates its manhood. *Esto perpetua.*

The American Medical Association and the next International Congress.—We look hopefully to the forthcoming meeting of the American Medical Association for a fraternal and compromise adjustment of the unpleasantness engendered, as we think, by mistakes on both sides—on the part of the original committee on organization in being rather too sectional and forgetting the claims of the profession of the West and South to a just representation in the organization, and to the new committee on organization in making such a sweeping, if not vengeful, change. The old committee, too, being residents of the East, nearer the old world and accustomed to making more frequent because more easy visits to Europe, and having consequently more personal acquaintances abroad than their equally capable, but less widely known brethren of the great West and South, appear to have blundered in taking their grievances out of the home circle.

This whole matter is a family quarrel to be settled among ourselves, and we regret that it should have gone beyond the home circle. Nevertheless, we hope to see the differences amicably adjusted at the coming meeting, at St. Louis, next May, by liberal and fraternal concessions on all sides and a cordial make-up all round, and a united and open—door hospitality to our European brethren, in which no sign of the present unpleasantness shall be apparent. The recriminating business has gone far enough. Let concessions and a united effort for the common professional honor now begin and be consummated at the coming meeting in St. Louis. Nothing that either committee has done need stand in the way of final harmony and success.

The Earl of Shaftesbury.—The *Medico-Legal Journal* thus editorially speaks of this distinguished philanthropist whom alienists delight to honor:

England and the world loses by the death of this nobleman, the most

conspicuous English name from the list of those who have been instrumental in lunacy reform.

For nearly half a century he has stood in the front rank of Englishmen who labored to ameliorate the condition of the insane in asylums.

As the head of the Board of English Lunacy Commissioners, he has been as well a careful observer, as an active participant in those changes in English lunacy laws that have transformed the English asylums from their old-time abuses into the nobler stand they assume to-day.

However good, or noble, or useful this life has been in other causes and in other regards, it is here we place his most deserving and well-merited renown.

New Books.—A compact selection of home and field games for boys and girls is the HOUSEHOLD GAME BOOK, mailed free for 2-cent stamps, by D. Lothrop & Co., Boston. The HOUSEHOLD RECEIPT BOOK and the HOUSEHOLD PRIMER, on same terms.

HOSPITAL NOTES.

RETIREMENT OF DR. EARLE.—On October 1, Dr. Pliny Earle retired from the Superintendency of the Northampton Lunatic Hospital, which position he had held for 21 years. It is no exaggeration to say that Dr. Earle has been a model official, and that he has accomplished a work for this institution that will stand the test of time and bear rich fruit many years hence. He has been a steady, painstaking, methodical worker, planning on a broad and liberal scale, and doing whatever he has undertaken with remarkable attention to every detail and with patient devotion to the welfare of the institution. He has been like a successful general at the head of an army, and his example will long be quoted at Northampton, as a model here and by the managers of other public institutions. For the present, he will remain at the hospital, by special invitation of the trustees.

At a meeting of the trustees of the State Lunatic Hospital at Northampton, on Thursday, July 2, A. D. 1885, the following resolutions were unanimously adopted:—

“Resolved, That, in excepting the resignation of Dr. Pliny Earle, Superintendent of this Hospital, the Trustees have reluctantly yielded to the conviction that his advancing years and impaired health demand rest, and relief from the responsibilities and labor of his position.

“Dr. Earle has been at the head of this Institution twenty-one years, and, during nearly all that period, has also been its Treasurer. In its management he has combined the highest professional skill and requirement with rare executive ability. By this thorough knowledge, his long experience, his patient attention to details—by his wisdom and firmness, his absolute fidelity to duty, and devotion to the interests of the Hospital, he has rendered invaluable services to the institution, and to the community which it serves. The Trustees are deeply sensible of the assistance which he has given them in the discharge of their duties, and follow him in his retirement, with the assurance of their highest respect and esteem.

“Resolved, That, the Trustees indulge the hope that Dr.

Earle will continue to make his home in this Institution, that they may continue to profit by his counsels; and they will provide that his rooms shall always be open and ready for his use.

"Resolved, That, these resolutions be entered upon the records of the Board, and that a copy thereof be attested by the Chairman and Secretary, to be transmitted to Dr. Earle.

"HENRY W. TAFT, Chairman.

"LYMAN D. JAMES, Secretary."

AT THE ASYLUM MEDICAL ASSOCIATION connected with the Willard Asylum for the Insane, Willard, New York, which meets fortnightly, the following subjects are to engage the attention of the Association: January 14th, "The Moral and Industrial Management of the Insane," by Dr. Allison. January 21st., "The Gross Anatomy and the Convolutions of the Brain," by Dr. Bristol. February 4th, "Therapeutics of Insanity," by Dr. Nellis. February 18th, "Neurotic Complications of Insanity," by Dr. Wise. March 4th, "Cerebral Apoplexy," by Dr. Blaine. March 18th, "Hysteria," by Dr. Sylvester. April 1st., "The Localization of Function in the Cerebral Cortex," by Dr. Wilkins. April 15th., "Masked Phthisis," by Dr. Hopkins.

JOHN WOODBURY SAWYER, M. D.—The Trustees of the Butler Hospital for the Insane announce with sincere sorrow, the death, on the 14th of December last, of John Woodbury Sawyer, M. D., who for nineteen years has been the Superintendent of the institution. Dr. Sawyer was a good and faithful servant, who loved his work, and whom it was a pleasure to see at the work he loved so well.

DR. WM. B. GOLDSMITH, of Danvers Hospital, Mass., is his worthy successor.

IN MEMORIAM.

THE LATE DR. T. R. H. SMITH.—DR. GEORGE C. CATLETT'S TRIBUTE TO THE DEPARTED ALIENIST-PHYSICIAN.—

Dr. George C. Catlett, Superintendent of the Missouri State Lunatic Asylum No. 2, in making his annual report to the board of managers of that institution, made the following reference to the death of Dr. T. R. H. Smith, late Superintendent of Asylum No. 2, at Fulton:

"In conclusion I embrace the sad privilege of officially announcing the death of Dr. T. R. H. Smith, the Physician and Superintendent of State Lunatic Asylum No. 1, which event occurred on the 21st of last December, and in the sixty-sixth year of his age. Dr. Smith died from nervous prostration, after an illness of thirty days, caused by taking cold. Naturally of a delicate constitution, he had for many years been in feeble health, and it therefore required only the disturbing influences of the climatic changes of the fall and winter seasons to derange his general health, which finally terminated in fatal prostration. Dr. Smith was a native of Kentucky. After obtaining his literary and medical education in the colleges of that State he moved to Missouri and commenced the practice of medicine. In 1855 he was elected to the office he held at the close of his life. Dr. Smith continued in the service of the State as Physician and Superintendent of the State Asylum uninterruptedly, except for a short period after the close of the war between the States, for thirty years. He was the oldest Superintendent, with one or two exceptions, in the United States. The early history of insane asylums in the United States show that they were subjected to many more embarrassments and were surrounded by many more complicated difficulties than the institutions of the present day have to contend with in their administration, many and difficult as they now are. Then greater ignorance and superstition prevailed as to insanity and its treatment, and with the limited provisions which the legislature could be induced to make, and the doubting and sensorious attitude the public often manifested towards asylums and their management, superintendents required stronger elements of character, unwavering determination of purpose,

together with the strongest convictions of duty harmonizing with a boundless sympathy for the afflicted, to enable them to succeed and persevere in the discharge of their duties. Dr. Smith was pre-eminently blessed with these high and superior moral and mental endowments. His high moral character, exemplary Christian life, his tender, gentle sympathy for the afflicted, his intellectual acquirements, his professed love for the study of medicine, chiefly for the benefits it confers on suffering humanity, clothed him with a wide and extended influence and gave him great power to control the friendly and to harmonize the adverse elements in the interest of the institution. These characteristics added force and efficiency to his superior administrative ability, which enabled him to keep the institution steadily advancing in the march of progress. For more than thirty years he devoted his intellectual and physical capabilities to this cause of suffering humanity. He was not influenced by the love of honor, nor power, nor wealth, but by a dominating sense of duty. The fulfillment of his mission in life. His life work was to give hope to the despairing, and the hopeless, and to lead the wandering intellects out of the oblivion and darkness of disorder into the light of soundness and reason. I doubt not but the clouds that surrounded the mortality of this good man and good physician was dissolved by the supreme love of his Maker, and that he will continue to live in an eternity of his supreme light and love."

The following resolutions were unanimously passed by the Board of Managers of the State Lunatic Asylum, December 31, 1885:

"WHEREAS, Dr. T. R. H. Smith, an honored citizen of the State, a learned and eminent physician, and the first Superintendent of the asylum, which office he has ever since, with the exception of seven years, held and filled with unparalleled fidelity, devotion and success, departed this life on the 21st day of December, 1885, therefore

"*Resolved*, That in his death this institution has lost a most faithful, honest and efficient officer; science, an earnest and intelligent devotee; suffering humanity, a sympathetic and self-sacrificing friend; the State, a wise, public spirited and useful citizen; Christianity, a liberal and sincere follower and advocate; his friends, a true

friend and a social, interesting and genial companion, and his family, a loving and tender father and husband.

"Resolved, That these resolutions be spread upon the records of this board and that the secretary furnish a copy of them to the family of the deceased, who have the deepest sympathy of this board in their great bereavement."

At a special meeting of the board of State Lunatic Asylum No. 1, located at Fulton, held for the purpose of electing a Superintendent to fill the vacancy caused by the death of Dr. T. R. H. Smith, Dr. W. R. Rhodes, of Mexico, was chosen. He will serve out the unexpired term of Dr. Smith, which is about two years and two months. He will assume control of the institution in a few days.

REVIEWS, BOOK NOTICES, &c.

PSYCHIATRY; A Clinical Treatise on Diseases of the Fore-Brain, based upon its Structure, Functions and Nutrition. By Theodore Meynert M. D., Professor of Nervous Diseases, and Chief of the Psychiatric Clinic in Vienna; translated by B. Sachs, M. D. Part I.—The Anatomy, Physiology and Chemistry of the Brain: G. P. Putnam's Sons, New York.

Dr. Sachs, in his preface, "craves the indulgence of the reader for the shortcomings of his translation," and he very justly says he is "quite certain that those best acquainted with the original (the German language) will not underrate the difficulties of the task, and will be most lenient in passing judgment on his errors."

Whether Dr. Sachs' rendering of the original text is defective or the contrary, he must himself be the most competent judge. He is most probably, well versed in his own native tongue, and if we may judge from the general character of his present work, he hardly needs to have dreaded severe criticism, always of course excepting that of the smattering pedantic class of linguists who are but imperfectly "acquainted with the original." No candid reader who has himself essayed the task of rendering into our conglomerate anarchical idiom, an exact equivalent of the language of *any* foreign writer, but above all that of a German savant, will evade the confession that he has very often realized his inability to reproduce, in fitting words, the absolutely true sense of his author, much less to reproduce idiomatic peculiarities and fine shadings of thought, for the expression of which his own language has not the equivalents, exactly because the people of other countries think not as we do, nor view things from the same standpoints, or through the same psychical media. Dr. Sachs' translation is really a credit to his English scholarship, and will certainly not detract from the merits of Meynert's treatise. It is, however, much to be regretted that the translator has sent forth the work on this side of the Atlantic, before pointing out to the author a few particulars which he might have deemed worthy of reconsideration. For example it can hardly be supposed that Dr. Meynert would have desired the reappearance of his descriptions of the layers of the cortex of the brain, had he become acquainted with the splendid work of Professor Golgi on the "Minute Anatomy of the Central Nervous Organs." Meynert assigns five layers to the cortex of the "longitudinal convolution of the frontal lobe," and no less than eight or nine to the calcarine portion of the occipital. Golgi reluctantly admits so many as three in any part of the cortex, and he tells us that he does so rather in deference to conventional usages than because of any clear recognition of existing anatomical arrangements. He says he cannot admit the division made by Meynert, "because it is altogether arbitrary and based on an erroneous judgment of the morphological characters of the elements distributed within the cortical gray substance."

He further says: "I should add, that with all exactitude I ought to state that a true distinction of cortical strata is impossible, as the differences in the different zones are so gradually effected, that it becomes impossible to say where one stratum ends and another begins." Golgi's beautiful plates, which he assures us are faithful representations of the preserved cerebral sections in his possession, which he is willing to exhibit to any persons who desire to institute a comparison, amply testify to the above statement. In very truth too, a comparison of Golgi's plates with the wretched henschcratchings exhibited in the cuts Nos. 24 and 26, which Dr. Sachs has suffered to be inflicted on his old master's treatise, is enough to draw tears from a millstone. Surely it is high time that these, and similar murderous representations of the layers and cells of the cerebral cortex, were relieved from further duty, and that the bungling artists would betake themselves, like old Falstaff, to "darning stockings and singing psalms." No diligent and sharp-eyed microscopic searcher ever yet found, or ever can find, in the cerebral cortex, anything resembling the cell figures and stratifications shown in the above cuts, and it is a burning shame to delude ingenuous students with the conceit that they see in them a true delineation of the elements of the brain cortex. Some of the other plates are by no means creditable to the artists, but unless we are assured that they are not faithful representations of the Viennese originals, it would be wrong to lay the blame on our own countrymen. Nos. 37 and 38 are rare specimens of artistic lucidity. Any reader who may not have eyes keener than a sparrow hawk will do well to provide himself with a powerful lens before starting in quest of the letters hidden away in these puzzling productions, otherwise he may give up the search in despair, and feel uncertain whether he has been staring at the relics of a pair of blasted boulder-stones or the magnified fragments of a mud pie.

As to the rest of the illustrations, which in all exceed three-score, anyone who has not learned his anatomy in Vienna will find himself much at sea, both in scrutinizing them and in studying the text which they have been designed to elucidate. Dr. Meynert has cut and slashed the brain in so many varied directions—longitudinally, transversely, vertically, obliquely and pantopically—that, what with sympathy for the mangled organ, and with visual bewilderment over its revelational capabilities, one longs for the advantage of a higher standpoint of observation, to enable him to catch a glimpse of the sun, so as to determine, at least approximately, his latitude and longitude on old-time brain-charts. There cannot, however, be any doubt that any diligent student who indulges only moderately in lager beer and tobacco fumes, may learn many things in brain geography and geology, in Meynert's book, which he had not before been able to disinter in other sepulchres, and as the translator gives us anticipative comfort in the intimation that he has "coined but very few new terms," and has "either used such terms as are familiar to all English students of cerebral anatomy, or has retained the Latin terms used by the author," (Sic) we need not feel unduly tremulous. We were not before aware that the following vocables belonged to the Latin family: Epencephalon, Diencephalon, Mesencephalon, Metencephalon, Prosencephalon, Thalamencephalon, etc.; but as we have never been in Vienna our linguistic

ignorance is not to be wondered at. We are free, too, to confess, that we did not before suspect that our skull held so many brains; nor must we conceal the fact that we knew not that our prosencephalon, or fore-brain, extended the whole way from front to rear. We knew that the roof of a house is not usually, in this country, called the front; but no doubt these matters are better understood in Aus'ria than in this analphabetic country. The author seems to be but imperfectly posted in the psychiatric literature of regions beyond German territories. He (almost accidentally or inadvertently) names a quarter of a dozen or so of English writers. Poor Ferrier is dispatched "parenthetically," as undeserving of a more elaborate pronouncement of doom by the "great brain anatomist" of Dr. Sachs' preface. *Ecce signum*. "In parenthesis be it said, that Ferrier's 'centres' have met with opposition from *all* other authors" (the *all* in Italics is textual).

"What, fought ye with them all?" asked Prince Henry, and stout old Jack exclaims, "I know not what ye call all; but if I fought not with fifty of them, I am a bunch of radish; if there were not two or three-and-fifty upon poor old Jack, then am I no two-legged creature." Jack set out with two assailants, in buckram; these split into four; these four, into nine; and the nine turned into eleven," but Jack "peppered them."

It is no doubt fortunate for English experimenters that the anti-vivisection craze has laid hold of that country, else we cannot imagine how many more of them would have been parenthetically bowstrunged by the Austrian brain autocrat. To those members of the medical profession who have striven to keep themselves *au courant* with the progress of cerebral exploration within their own country and outside of it, it will be somewhat surprising to learn that Ferrier's centres have been all knocked into a cocked hat, and a few may even shed a tear or two over his untimely fate, and deplore the rash snipping off his thread by the merciless Danubian Atropos.

Dr. Meynert dates his preface "Easter, 1884." Had he then heard or read anything of the proceedings of the Fourth Congress of the Phreniatric Society, of Italy, held at Voghera, in September, 1883? Voghera is in Northern Italy. It is not very far from Solferino or Magenta, and perhaps some of Dr. Meynert's acquaintances, who have not forgotten the year 1859, might yet be able to trace on the map the road by which they withdrew from those parts. Even on the banks of the Mississippi, the proceedings of the Voghera congress were known a good while before Easter, 1884. If Dr. Meynert had not then fallen in with them we need not be astonished at his rehash of the orthodox doctrine of the co-ordinating function of the cerebellum; but if he had read these proceedings he surely would have cautioned Dr. Sachs against putting his book into the hands of American readers, without emendation of this part. Prof. Luciani, at the above congress, clearly proved that whatever else might be the function of the cerebellum, muscular co-ordination was not its office; neither was it, as Gall upheld, that of sexual prepotency or procreative impulsions. Readers of the *ALIENIST* will not have forgotten the report of Luciani's memoir, given in the July, 1885, number. We now commend it to the consideration of Dr. Sachs.

and through him to the polite condescension of "the great brain anatomist."

It would be unjust towards the distinguished Vienna psychiatrist, to avoid intimating to our readers that they may look, in the next volume of his book, for some new revelations on the subject of "hereditary predisposition" to mental disease. He says he "was not content, as others have been, to accept the mystical conception of heredity —" All right. Get away with psychiatric mysticism, and every other sort of becloudment as fast as you like, even as fast as the Austrian troops cleared out of Italy, but pray do not lead us out of mystery into denser mistiness. There is no hereditary predisposition to disease, we are promised to be taught. Why? Because Prof. Meynert says he has "considered predisposition as a form of disease, and not as a condition antecedent to it." In the conclusion of his preface, he says, "thinking physicians will distinguish between those who are possibly "called" to disease, and that fortunately small number of persons who are, in the saddest sense of the term, "chosen for disease." Here is psychiatry in a nut-shell. Predestination fixes it. Most sincerely do we hope the "great brain anatomist" will not be one of the "chosen." But we have so long been accustomed to hear and to read of hereditary predisposition to various forms of disease, both physical and psychical, that it will require very strong evidence of the alleged error to lead us to a recantation of our faith.

That the children of insane, or drunken, or consumptive persons have no predisposition to the diseases of their parents will be a most gratifying fact when we see it clearly demonstrated; but there must be no dodging or shuffling in the demonstration. Calling predisposition, as Meynert threatens to do, "not an antecedent of the disease but a part of the disease itself," will not meet the requirement. The children of drunkards are not alcoholists before they have begun to drink; many of them indeed entirely escape the malady by virtue of the domestic warnings they have had of the terrible evil. It would surely be a perversion of logic to say that such persons were absolutely diseased; yet we know how very important it is for them to keep away from *the temptation*. Perseus became immortalized by cutting off the head of Medusa, but the drops of blood that fell from it turned into serpents, and we are told that it still retained its putrefying power. Shifting the burthen from the hips to the shoulders does not lessen the weight of the horse's burthen. Shutting out heredity at the window, and letting him in by the hall-door, is but a feeble sort of house protection. In predisposition we have warning of the lurking thief; in disease, in whatever period present, the thief has made his entrance.

LA EMIPLEGIA.—Saggio di fisio-patologia del cervello con particolare considerazione alla localizzazione dei focolai distruttivi, pel Dottor Leonardo, Bianchi Professor-pareggiato all' Università, Medico de Immacolato, Prov. di Napoli, &c., &c.

We are indebted to the polite fraternal consideration of the distinguished author, for the privilege of possessing the above most valuable little treatise on hemiplegia.

The work comprises thirteen lectures, delivered by Prof. Bianchi in

the scholastic session of 1883—84, to the students of psychiatry who attended his clinical course in the Provincial Asylum for the insane in Naples. The comprehensive subject of hemiplegia, if not treated of so exhaustively as it probably would have been by some other continental clinicists, has certainly suffered no detriment at the hands of the erudite and experienced Neapolitan teacher.

The first, or introductory lecture treats of the general conception of the nervous system from the clinical point of view. The grand progress of the knowledge of the nervous system. The corresponding change in clinical instruction. The conception of the semiology of nervous diseases. The errors inevitably arising in the diagnosis of the diseases of some of the nervous centres; action from a distance, functional compensation.

The following excerpt from the introduction to this lecture may afford to the reader an enticing foretaste of the general merits of the book and of the mental tendencies of its author:

"The nervous system, differing from all the other organs, is not a single organ, homogeneous in structure and function; it is an assemblage of innumerable organs, of divers hierarchies, so co-ordinated and so conjunctly associated as to appear to be one sole thing in the manifestation of its multiple activities: Life! Analyze this unity of force which we call life, study it in man, after having followed it from its first animal manifestations and you will readily be convinced that so sublimely harmonious an extrinsication of this grand force of nature is the result of an innumerable series of harmonised activities, all, or almost all of which emanate from the nervous system. From the most elementary organic movement to that of volition, from the most confused and indeterminate sensation to the most perfect and clear consciousness, in all the functions you have been accustomed to call organic, and which you are wont to regard as the result of the intrinsic and independent activities of the organ from which they emanate, you will discover the influence, almost always direct, sometimes indirect, of the nervous system, and you will imagine how vast and diverse must be its dominions, and how difficult must be the labor of ascertaining with exactitude their characters, as well as of discovering their confines."

The second lecture is devoted to the anatomical description of those parts of the brain and of the nervous system which are most intimately connected with the causation and the modifications of hemiplegia. The student is here presented with neat illustrative plates, which cannot fail greatly to facilitate this indispensable portion of his arduous, but by no means unpleasant task; and his relish of the study will not fail to be quickened when he becomes apprised of the fact, that in no part of Europe, at the present day, is the practical study of the brain and its appendages pursued with keener avidity or more patient and persistent research, than in the glorious old Peninsula of Italy; nor certainly can less be said of the untiring industry and valuable contributions of its numerous army of experimenters and close observers, in the great fields of cerebral physiology and pathology, among whom Professor Bianchi stands admittedly in the first rank.

Our available space does not permit a serial résumé of the lectures,

which would otherwise be a very pleasing enterprise; for the book is nothing less than charmingly instructive, and to attempt, where all is so good, any collation or review of its salient good parts might be to do injustice to others equally worthy of commendation.

The author has not restricted himself to the discussion of the mere classic form of hemiplegia, as a simple loss or decrease of muscular power on one side of the body. This indeed he has treated of in its multitudinous forms and phases; but he has embraced in his work other forms of unllateral muscular affections, very naturally regarded by him as standing in affinity with his prime subject; as hemianæsthesia, hemianopsia, hemichorea, athetosis, contracture, aphasia, epilepsy, &c.

The 9th, 10th and 11th lectures are devoted to "the disturbances of language in hemiplegia," and are certainly both interesting and instructive. To such readers as may not chance to be familiar with the works of Max Müller, and other distinguished modern linguists, the 9th lecture will be attractive, and though it may, to those better versed in modern philology, appear to border on the superogatory, the fact is not to be overlooked, that Professor Bianchi was speaking to a class of medical students who had never had the opportunity, or, perhaps, the inclination, to study the "origin of language." When these three lectures are read consecutively, it will be found that Prof. Bianchi judged wisely in laying so suitable a foundation for his valuable superstructure.

The 12th lecture is devoted mainly to the semiology and diagnosis of hemiplegia and its various affilliations: it is, in truth, a rare *Multum in Parvo*, and if the Professor's students did not profit from it, the fault was not in his want of clearness of expression, or his injudicious selection of instructive facts.

The 13th and last lecture treats of the progress and treatment of the disease, and it is certainly not a blemishing culmination of the work.

That the reader may judge for himself, we present the following excerpt from the part on prognosis:

Prognosis of Hemiplegia.—"In hemiplegia the prognosis is one of the most delicate and grave tasks of the clinician, as various interests are suddenly imperiled when a person, especially if the head of a family, or of a business concern, is so terribly and instantly struck down in the fullness of health and mental and bodily activity.

"Apoplexy is always a cause of anxiety to the friends and relatives of the victim, and many questions are put to the physician just when the gravity of the case presses heavily on the composure of the by-standers and on himself. In most instances you will be called to rush to the bedside of an individual immersed in coma, and you will have to draw your prognostic data in this positive condition: 1st from the manner in which the attack has proceeded; if it has been rapid and of short duration, the prognosis will be favorable *as regards life*, though not so as to the paralysis. The more profound is the coma, and if there is stertor, abolition of the reflexes, involuntary passages of fæces and urine, so much the graver is the prognosis. If the coma is not profound, but persists over twenty-four hours, the case is grave. If a second twenty-four hours pass without improvement, the case is almost certainly fatal.

"The accurate examination of the patient in these cases, usually furnishes data more or less valuable for the basis of a judicious prognosis. The disturbances of respiration; stertorous, irregular breathing, the Cheyne Stokes sort, are of bad augury. The state of the pulse, from this point of view, is not less important, both as regards prognosis and treatment; a rapid, irregular soft pulse has more grave significance than a hard equal pulse. Ahythm is a grave symptom, and a small, frequent, irregular and feeble pulse foretells collapse. The temperature should always be taken into account in balancing our opinion; a great lowering of it at the outset is a grave fact; if the heat afterwards rises above 39° (102.2 Fahr.) the prognosis becomes proportionally bad; and if a rapid lowering of the temperature again occurs, the most rational conclusion is that a fresh hemorrhage has taken place. The presence of albumen and of sugar in the urine, after a cerebral attack, aggravates the prognosis, because in this case the focus is in the bulb or its vicinity.

"Repeated vomiting is a grave fact, whether because it reveals the seat of the focus in the bulb or its vicinity, or because the effort of vomiting facilitates a fresh hemorrhage, and if it does nothing more, it disturbs the cerebral circulation very powerfully.

"If there are symptoms which may reveal the presence of hemorrhage in the ventricles, or indicate bilateral foci, there is but little hope that the patient will pass out of the comatose state. A hemorrhage of the pons, the bulb and the cerebellum, or a focus of softening in these organs, is always more grave than an analogous process in one of the cerebral hemispheres.

"The coma may fortunately have yielded, and then new circumstances and new facts are presented for a suitable prognostic decision. The age of the patient, the precedence of other similar accesses, the state of the organs and apparatus should be taken into contribution in the formation of a discreet prognosis. After sixty years of age a person generally has less resisting force, and the nervous centres are on the retrogressive path, so that a fatal issue more readily occurs. The ancients attached very great significance to a second attack, and still more to a third; and though these attacks may have proceeded from causes different from those which determined the first, it is not to be doubted that the resistance of the brain is less and that its functional powers are more readily exhausted, after a first attack.

"From the statistics of Durand-Fardel, it appears that the most grave hemorrhages, with extravasation in the ventricles, or beneath the meninges, are met with most frequently in persons that have passed their sixtieth year.

"A renal disease, or a disease of the heart (endocarditis, hypertrophy, fatty degeneration or marasmus), degeneration of the arteries, especially atheroma, so frequent after sixty years, and failing nutrition, are unfavorable symptoms.

"A rapid rise of temperature on the third or fourth day after the attack, or also the maintenance of a high temperature from the outset, are threatening signs.

"I have before spoken of the gravity of decubitus on the paralyzed

side, and sometimes on the other also; it is usually associated with rise of temperature, and it is a bad omen, because it can seldom be arrested; it usually spreads and deepens, and ends with septic infection and collapse.

"Should the first eight or ten days from the attack pass over, the patient will not likely perish from its immediate consequences, and he may then be assured as relates to life, unless, perchance, as respects pulmonitis, which is readily developed even in a later period, and it then usually assumes a character of much gravity.

"When the second period has passed, it remains to be seen whether the paralysis and all the other disturbances, with which it may have been associated, especially aphasia, are, or are not, in the course of disappearing. Permit me at this point, to remind you that some only of the symptoms of the apoplectic seizure are direct, that is to say, are the expression of the abolished function of a centre that has been destroyed; others are indirect, the phenomena of inhibition, or from a distance; hence it is that the prognosis, when this is taken into account, will be the more grave the less intense have been the general phenomena among which the symptoms of the hemiplegia appeared.

"When the general pre-existing phenomena have disappeared, the hope of recovery from the paralysis is so much the more weakened, the more tardy is the appearance of the first signs of returning motor power. When in the course of three or four weeks a good part of the voluntary motility on the paralyzed side has not been regained, it is very unlikely that in the course of time complete recovery from the paralysis will take place. The extent and the form of the paralysis are here of no trivial importance. Monoplegias, such as those depending on cortical lesions, are more readily compensated by the cortical arcs surrounding the destructive foci, which, for this reason, frequently leave a portion of the cortical area belonging to the paralyzed limb intact, and this portion may at a late period resume its proper function, as the analogue of the area destroyed. Besides, certain monoplegias disappear more readily than others. For example, facial monoplegias, monoplegia of an under limb is usually less grave than that of an upper one, because the motions of the lower one are more associated with those of the other side, and hence the other hemisphere, remaining sound, may sufficiently compensate the abolished functionality of the injured hemisphere. Brachial monoplegias are more grave, for in man the specialization of the movements, so complex and delicate, of the upper limb, reduces to a very little thing, compensation on the part of the zones surrounding the focus, or on the part of the other hemisphere, differently from what is verified in dogs, as I have demonstrated.

"When, in the first days after the seizure, there appears that which goes by the name of precocious contracture, of which I have spoken on another occasion, we may hold it as certain, that at a later period a permanent contracture will be established.

"Trophic disturbances, especially the articular phlogoses, have not a decided value in the prognosis of hemiplegia; yet they aggravate the condition of the patient.

"Some of the phenomena of hemiplegia which generally most alarm

those present, whether considered in themselves, or because of the serious interests connected with them, are the mental disturbances and those of aphasia.

"Diffuse atheroma, and in like manner thromboses, lessen our hopes of reintegration of those states of consciousness which permit a free determination of the patient's own will. The hemorrhage, even when it has produced a large focus, provided that it is not accompanied by more general vascular disturbances, hardly succeeds in disturbing the subjective process so as to prevent, *cæteris paribus*, the free action of the patient's own will. In these cases the patients should be examined with all the strictness which modern psychiatric science exacts, not only as to psychical disturbances considered in themselves, but also in relation to acts which may perchance be imputed to, or charged against, patients of this class.

"When verbal amnesia persists long after the general phenomena of the apoplectic stroke have disappeared, or also without this, the intellect may be considered as absolutely enfeebled, and most generally with little hope of restoration.

"Paralysis in the lower limb more intense than in the upper, if the hemiplegia is pronounced and complete, indicates greater gravity both as regards the intellect and the final issue (Trousseau); and I have myself realized this in four cases. Not so when it is a case of crural monoplegia from a circumscribed cortical focus in the corresponding centre, in which case the prognosis must depend on all the other circumstances before related.

"As respects aphasia, the following criteria may be kept in view, since it is one of the most frequent symptoms of arrest, it has not a decisive signification in the first days of the cerebral attack. Sometimes a large focus is formed in the right hemisphere. In such a case we may be certain, *cæteris paribus*, the aphasia will disappear in the course of a few days, if the patient does not chance to be left-handed. If the focus is situated in the left hemisphere, we may derive much comfort from statistics, which show how comparatively rare are permanent aphasias.

"Two aphasic disturbances in these cases should principally interest you, being such, by cutting off the familiar and social relations of the patient, may very seriously affect his own interests and those of others; these disturbances are verbal deafness, and motor, or ataxic aphasia. A progressive retrocession of all the symptoms may be hoped for within the first fifteen days; but when these symptoms continue unchanged through this period of time, we may feel certain that the aphasic disturbances will persist. Within the first fifteen days we may have for ataxic aphasia the following criterion: the absence of paralysis of the tongue, or the early decrease of the paralysis and of that of the face may lead us to presume that the focus is at a distance from the cortical areas of the face, the tongue and articulate speech. When the paralysis of the face and the tongue is much accentuated, and does not decrease, and on the other hand the paralytic symptoms in the limbs recede, it is most probable that the focus occupies the field of articulate speech.

"From an analysis of 20 or 21 cases of verbal deafness published, we cannot derive any prognostic datum in this first period. After this period we may have other criteria.

"The possibility of writing renders the position less grave in either verbal deafness or ataxic aphasia. When, instead, we have agraphia or verbal blindness, or both, the position is of the gravest order, because on the one side we infer the vastness of the lesion; and on the other we know that the paths through which in general the renovation of language is effected, are defective. In such cases the physician is obliged to study the relations between thought and imitation, and first of all to assure himself that amimia or paramimia is not present.

"Here, in the meantime, another prognostic datum is presented; it is, that young persons, who do not present diffuse degenerations of the cerebral arteries, or marked psychical disturbances, may learn to comprehend again spoken language, and to speak by means of long exercise, under proper instruction.

"Hemianæsthesia has no great prognostic significance in the first days following the access, because it usually diminishes, or altogether disappears. When it remains unmodified in the field of paralysis, it is a grave symptom, because it indicates the vastness of the lesion, and in such cases the paralysis will hardly pass away. Prehemiplegia, or posthemiplegia, or hemichorea is an absolutely grave symptom, not as to life, but because, up to the present time, it must be held to be incurable.

"When choreiform involuntary contractions commence, it may be held as certain that the paresis and hemichorea will continue indefinitely.

"Hemiathetosis is not so grave as hemichorea, because, as I have in another part observed, cases of hemiathetosis have recovered, but the same cannot be said of hemichorea.

"Great exaggeration of the tendon reflex, in the first periods of the disease, on the paralyzed side, indicates as very probable the approaching introduction of contracture. Contracture and tremor are permanent symptoms, and they denote incurability of the paralysis."

There is but little probability that this valuable work will find any American publishers so adventurous, or so scientifically discerning, as to undertake its reproduction in this country. Whether the failure may have its cause in the sound business judgment of the rulers of the book trade, based on their knowledge and resulting appreciation of the tastes and tendencies of the purchasing minority of the medical profession, or in their own limited and obfuscated powers of vision, is a question too puzzling to be here discussed; nevertheless it is a fact that the medical domain is perennially and perpetually deluged with books of all degrees of merit, or no merit at all, and one wonders what becomes of them all, or how many of them are carefully or profitably read. Is it the fact that works of real scientific merit command but meager sale in the great Republic, and that in consequence publishers who have ventured on the issue of such books, have learned to shun them as perilous investments? If this be true, but one conclusion is deducible, and it speaks but poorly for the general attainments and the genius of the bulk of the medical profession.

W.

PSYCHIATRIA. By Prof. N. M. Kowalewski, Kharkow (Russia), M. Silberberga, 1385.

The editor has received, with the compliments of the author, a copy of

the latest work from the pen of Professor Kowalewski, being a compilation from the lectures delivered by him before the medical classes in the University, of Kharkow during the collegiate years of 1884-5, revised and edited by the author, whose name is so widely and well known to students of mental and nervous diseases through his former works and his contributions to the *Archiv psykiatrii, neurologii y sud. psykopatologii* (Archives of Psychiatry, Neurology and Psychopathology) of which he is editor. The work in hand is in the Russian language, and in its present form will consequently reach but comparatively few of those interested in the study of the subjects on which it treats. We understand, however, that Prof. Kowalewski, among his other accomplishments is, like all of his countrymen, a linguist having perfect command of German, French and English, and we therefore venture to hope that "Psychiatria" will soon appear in one of the languages of Western Europe. This is the more to be desired as the work is thoroughly practical and designed not so much for specialists in mental and nervous diseases, as for the guidance and aid of the general practitioner, who is so frequently called upon to act when special advice and consultations are not attainable.

The author divides his subject under four great heads, the first embracing melancholia, active and passive; mania, tranquil and furious; and dementia, secondary (including past melancholia and past mania), and primary (including acute and chronic, the latter being subdivided into senile, pseudo apathetic, etc.) The second class of neuroses includes idiocy (cretinism, idiotism, imbecility and moral insanity; and neurasthenia, subdivided into pathophobia, *folie de la doute*, paranoia (persecutoria, ambitiona, sexualis, etc.); hysteria, and epilepsy (somatic and psychic). The third section is devoted to paralysis progressiva.

The most valuable chapters to the general practitioner are those which close the work and form the fourth division, viz: those on the psychosis of syphilis and alcoholism.

The therapeutical indications of every condition are fully entered into and are of the most practical description. In conclusion, we must again express our regret that the work is as yet confined to the Russian tongue, and the hope that it will soon appear in either English or German, so that it may reach the great mass of physicians of Europe and America.

F. L. J.

POOR HOUSE ADMINISTRATION. An address made at the State Convention of Superintendents of the Poor, held at Watertown, N. Y., July 21-23, 1885, by William P. Letchworth, President of the New York State Board of Charities.

This is a thoughtful and philanthropic paper by a gentleman well known to possess a capable head for observation, but one also whose heart is larger than his head, if we may be allowed such a figure of speech, such of the suggestions as have appeared to us to be errors in the philanthropic desires and recommendations of Mr. W. Letchworth, though they have not been many, have sprung from an exuberant charity overbalancing the cold conclusions of long practical observation.

We note to criticise the following passage, the remainder of the brochure meets with our approval: "Those who offer a home for a child

mainly for the benefit to be derived from its labor are to be shunned * * who would examine his muscles as he would feel the legs of a horse he thought of purchasing, is not a desirable guardian for a homeless child." On the contrary our observation has been that, those who most prudently select their children with reference to their physical health, prove the most prudent providers for them in the long run, teaching them industry and self-reliance, and not withholding from them such essentials of moral and mental training as fit them for usefulness and success in life. An often shown error, of those who turn their attention in the direction of caring for the poor and become guardians of poor houses, orphans homes, etc., is in teaching these children of misfortune to expect too much and in being too tender with them. They are often descended from an overindulged, luxury damaged and improvident ancestry, and need to have the faculty of self-help developed in them. We teach our own children as the best legacy we can bequeath, not to expect much of the world, but to make the world yield them the reward of industry, self-reliance, fragality and rectitude of conduct. A very moderate education suffices with strong body and a brave heart to secure success in life. The weakness of all of our charities is in making their recipient too dependent and helpless; in suffering the innate spirit of self-reliance and independence to remain too often dormant and undeveloped.

Whenever, practicable, charities should be conducted in the nature of a loan of assistance and an opportunity for giving a *quid pro quo* afforded the recipient of charity and gratitude exacted. It is right to house the helpless and to otherwise care for them. It is a duty to them and to the still unhelped to require them to repay when they regain strength from our assistance, and we should encourage the growth of self-respect, self reliance, and a desire to accept nothing from the world, as an absolutely free gift never to be repaid. While we help the helpless we should not foster the spirit of pauperism. The workshop and the poor house, the hospital and the farm, should adjoin each the other and be supplementary.

The author takes a broad and correct view of the value of light and the danger of basements and of the construction and environments of the county homes for the poor, and the pamphlet before us ought to be read by all guardians of these institutions.

Respecting the separation of the insane from the sane poor his views are mature and timely, and he favors separate provision for the chronic insane, to which some eloquent objections have been urged, but, to which, practically, there is no objection provided the patients are placed under the care of capable physicians competent to minister successfully to minds diseased, and not in the hands of non-medical superintendents. We quote briefly and conclude these cursory comments.

The State has demonstrated the practicability, as at the Willard and Binghampton Asylums, of making suitable provision for the chronic insane at an average per capita cost of about \$2.50 per week. If one stops to reflect upon the usual price of plain board paid by laboring men who demand no special attention other than the providing of food and beds, and compares it with the cost of keeping the insane—perhaps dangerous, violent, destructive and filthy; needing special nourishment; in some

cases, even to be fed; if enfeebled, requiring more delicate food than sane paupers, and if well, a greater quantity; demanding constant supervision by numerous attendants, as also medical care—the conclusion will be reached that the State rate is at least reasonable. So far as accommodation may be had for this class at the State institutions, “I think that the interest of the insane or of the counties is not promoted by erecting county buildings for their care. I know it is sometimes urged that the benefit of local patronage should be dispensed through their maintenance; but the welfare of the insane should not be sacrificed to local pecuniary considerations. To keep the insane at the poorhouse, though in a separate department, involves the introduction of a noisy, disturbing, and troublesome element, changing the character of the institution, bringing unhappiness and disquiet to the other inmates, and thus defeating a humane purpose. Even where buildings have been erected by counties for the care of the insane; it does not seem advisable to retain the violent, disturbed, or filthy patients; but better to transfer them to State care, leaving in county care only the comparatively harmless and quiet. But these require special provision in the way of buildings, attendants, and medical supervision, which can be more economically furnished under a system that embraces the care of considerable numbers. Should the State determine to build another asylum for the chronic insane, with plain, inexpensive buildings, as at Willard, and locate it in one of the northern counties, some of the difficulties surrounding this serious question would be removed.” If every State duplicated Willard, the chronic insane would not lack for proper care.

“THE NATURE OF MIND AND HUMAN AUTOMATISM.” By Morton Prince, M. D., Physician for Nervous Diseases, Boston Dispensary, and for out patients, Boston Hospital, etc.

This book is a 175 page duodecimo volume from the well known Philadelphia Publishing House of J. B. Lippincott & Co., in which the author maintains the somatic origin and nature of mind. The materialistic view of mind is confidently asserted and plausibly supported. It cannot be said, however, that the author has succeeded any better than those who have preceded him in establishing the proposition. The author's argument is not even so convincing as many others—not so well put forth as appears in the clear and more elaborate statements of the lamented Bucola, whose review articles on this always interesting subject have appeared in recent issues of the *ALIENIST AND NEUROLOGIST*. The author, like most scientific writers on the nature of mind, concludes mind to be material, because, science can throw no other than a material light on mind and can not bring into view that which is immaterial; therefore, he argues mind as material. By mind, the author evidently means the whole psychical nature of man, not mind as it might be differentiated from the soul of man.

It is only fair to the author to say in his own words that, by materialism he “does not mean any of those notions which are commonly attached to the term.” By materialism he means “a much higher form of doctrine” which he believes to be “the legitimate expression of the scientific thought of the day.” “As long as anything is the resultant of the forces of nature it belong to materialism. “Every one knows,” says the author, that

"thought is not stones, or sticks, or horses, or dogs, or even physical vibrations or neural undulations." "But, thought may be identical with the substratum underlying certain physical vibrations, and any doctrine which accepts this * * * is materialism." (P. 152.)

We do not accept this conclusion, for of the real nature of mind we are still ignorant. Science has shed no certain revelations, just as she has not yet revealed to us the molecular constitutions of the cerebral cells or the precise number of the atomic elements of the ganglia cells of the brain, whose number astounds us. Mind may be, and doubtless is, a subtle form of materiality. Mind and infinitesimal matter may yet be proven to be convertible terms and so may matter and force, but, until the proof is in controvertible and demonstrable beyond doubt, we are justified in viewing and bound to regard man as both a psychical and a physical being, physical and the mind and brain as a psycho-somatic rather than an exclusively organ.

It must be confessed, however, that the tendency of late research in the realm of cerebration and mentality is to reveal the subtle in matter, and to bring mind and molecule into the most intimate association, so intimate in fact, that they can not be practically dissevered. Our notion of matter and its properties are changing and brain cell and mind force, may yet be proven to be one and inseparable. They seem inseparable in health and in disease, whether they are inseparable, and death ends all, is the enigma which science has not yet solved, for nothing, more than true science, serves to reveal to us how surely "things are not what they seem," and the things which have seemed to be truth absolute, have been proven by her researches to be only partial truths. She leads continually into the vestibule of the unknown and unknowable. She opens up new pathways in neural research only to show us dimly how much beyond remains to be explored, and to teach her votaries, modestly caution us to final conclusions. There is a spiritual nature in man revealed through the lense of his unerring consciousness, and, if the psychical and physical in him are one, the fact is not yet proved.

A CASE OF MORAL INSANITY. By W. B. Goldsmith, M. D., Superintendent of the Danvers Lunatic Hospital, Danvers, Mass.

It any argument be necessary to establish the existence of moral insanity, it is furnished by Dr. Goldsmith in this admirable paper, which was read before the Association of Superintendents, at the meeting in 1883.

The case was that of a girl, aged eighteen years, who seems to have inherited a neurotic tendency from her father who had an attack of "brain fever" before her birth, and who committed suicide when she was about eight years old, the result of acute melancholia. She was bright intellectually, and showed no marked peculiarities until recovery from a severe attack of scarlatina, in her seventh year. After this illness, she showed strong erratic tendencies, became incapable of self-control, and unable to submit to the discipline of home, school, or the different reformatory homes, of which she became an inmate from time to time. All her teachers and the authorities of institutions where she was placed—including several asylums for the insane—recognized the fact that she was insane, although, the most searching inquiry and patient observation failed to detect any

intellectual derangement whatsoever. Her insanity manifested itself in fits of ungovernable fury, in which she assaulted her attendants and destroyed everything breakable which came in her way. These would be of variable duration—from a few hours to a week or more. There seemed to be no relation between them and menstruation. Between the attacks, she was quiet, modest, industrious and anxious to please. The erratic tendency seems to have indicated to Dr. Goldsmith the proper means to be employed to secure recovery. All forms of moral and medical treatment having failed, ovariectomy was decided upon as a *dernier ressort*. This was successfully performed by Dr. Homens, of Boston, in July, 1883. Both ovaries were apparently healthy, both in gross appearance and on microscopical examinations. She made a quick recovery, and since the operation she has shown *no sign whatsoever* of insanity in any form.

Mr. Lawson Tait has directed attention to the pernicious effects of zymotic diseases upon the development and functions of the ovaries. Of these, scarlatina seems to exert the worst influence, provided it should occur before puberty. Among these consequences, Tait enumerates delayed menstruation and, frequently, retention of the childlike configuration of body. Dr. Goldsmith, in relating his case, pays little attention to the subject of menstruation, which was established at fourteen years, but, he says "her physical confirmation is that of a young girl rather than a woman." More attention to this point would have added to the interest, if not to the value of his case.

W. B. H.

A HANDBOOK ON THE DISEASES OF THE NERVOUS SYSTEM. By James Ross, M. D., F. R. C. P., LL. D., Senior Assistant Physician to the Manchester Royal Infirmary, etc. Octavo, 726 pages, 184 illustrations. Cloth, \$4.50; leather, \$5.50. Philadelphia, Lea Brothers & Co., 1885.

The special and peculiar feature of this book is that it describes not only the classical diseases of the nervous system more than any other book, but it describes those morbid conditions of the brain, cord, meninges, ganglia and nerves, which have not been generally recognized by neurologists as morbid entities, and must therefore be an indispensable addition to every neurological library and to every complete practical collection of the medical literature.

The scope and execution of the book far exceed the modest pretensions of its author as set forth in his preface. The illustrations are neatly done, accurate and singularly well selected for clear elucidation of the respective texts which they accompany.

We regret that the able author makes such scant acknowledgment of American neurological contributions. Some of his descriptions would have been better and more accurate if the author had consulted and patterned after some American writers who have preceded him, notably, his account of the symptoms of neurasthenia which was better described and differentiated by Vandeusen many years ago, and by Beard, from whom the author takes, without credit, a number of the symptomatic morbid fears of neurasthenia first named by him. The book combines the features of Ranney's applied anatomy of the nervous system with those of the ordinary typical treatise on the nervous diseases. The book has come to us too late for a more extended discussion of its contents.

THE ASYLUM FOR THE INSANE.—

La pubblicazione del presente volume (II e III Num:) del Giornale di Psichiatria "IL MANICOMIO" edito dalla Tipografia di questo Istituto, corredata di grande quantità di tipi, ha ottenuto un lusinghiero successo, che ci rende arditi richiederle il cambio del Giornale da lei diretto. Qualora cotesta Direzione credesse ottemperare a tale nostro desiderio, Le rivolghiamo preghiera di farcene avvisati; al contrario, ove credesse di non accettare il cambio proposto, di respingere il presente volume.

LA DIREZIONE.

(TRANSLATION.)

The publication of the present volume (Nos. 2 and 3) of the journal of psychiatry, "The Asylum for the Insane," issued by the printing office of this institution, supplied with a large quantity of type, has obtained much flattering success as to embolden us to request exchange of the journal edited by you. Should your direction assent to our desire, we pray you to advise us of the fact; but, if the proposed exchange is not accepted, please return the present volume.

CATHELL'S "PHYSICIAN HIMSELF."—This book is meeting with some adverse criticism, and we think, the injunctions of the book are, in several respects, justly open to objection.

When the book first appeared we gave it our approval, because of its discussion of subjects interesting to the business welfare of physicians. Its aim seemed to be a sort of book of etiquette and business habits. As a book of the author's opinions it may be read safely enough, by such physicians as are accustomed to weigh without blindly adopting the thoughts of others, but as a book of infallible precepts of business, professional or social conduct, its teachings must, in some respects, be taken *cum grano salis*.

The deception practiced upon Willie the hydrophobiac and some of the author's reasonings are not to be commended.

We hope the precepts of the book will be either modified by the author or foot notes added, showing wherein different views of propriety in the premises are held by other reputable physicians.

The author's precept about playing "second fiddle" by giving chloroform, etc., is vicious. The same objection might be urged to tying an artery when it had been found by another surgeon—yet, one of the greatest surgeons of this county, Dr. Chas. A. Pope, tied, after the writer had found and caught with his forceps (in his *first* capital operation) the femoral artery, while another distinguished surgeon, Dr. E. H. Gregory, gave the chloroform, while the young man, then a surgeon in charge of a military hospital, did the honorable part of amputating, adjusting the flaps and conducting the after treatment.

The injunction against certifying to the insanity for commitment of the harmless insane, who believe their legs are made of glass, etc., is not sound. Asylums are places of cure and a persisting delusion of that kind imperils an insane man's chances of recovery as much as a homicidal or other delusion leading to violence. It is the physician's duty to give such persons a chance of cure, by changing their environments and getting them under the proper medical treatment. It is not always politic, but it is just, and what is just to the patient is the physician's duty, whether the populace applaud the act or not.

The precept, too, about consultations with specialists might bear judicious modification. It never weakens the confidence of a good family in their physician, if he confers with a better and more especially a skilled physician.

DANIEL, LIKE GAILLARD, has a thoroughly red journal, and their editorials are not so sanguinary as their vestures. A blood-red medical journal is much like a black horse to a doctor's buggy, too suggestive of a funeral. Nevertheless, those who take either of these journals, will find them conducted by amiable gentlemen and "milder mannered" than such as "scuttle-ship-or-cut-a-throat." They are not at all piratical. Daniel is wide awake and enthusiastic, and will put new light in the lone star of Southern Medical Journalism. We don't like Daniel's journalistic garments, but the journal speaks better than it looks.

THE MEDICAL NEWS' VISITING LIST.—A complete pocket-book of useful memoranda for physicians and surgeons, with blanks suitable for keeping the professional and business records of a practice aggregating thirty patients per day. Wallet form, handsome red seal binding, tucks, pocket, pencil and rubber, \$1.00. With patent thumb-letter index for rapid use, 25 cents additional. Lea Brothers & Co., 706 Sansom St., Philadelphia.

Ideal Cholecystotomy. A successful case, with critical remarks on the pathology and the different operative procedures practiced on the system of gall vessels. By Augustus C. Bernays, A. M., M. D. Heidelberg; M.R.C.S., England; F.R.M.S., London; Member German Society Surgeons of Berlin; Professor of Anatomy St. Louis College Physicians and Surgeons. [Reprint.]

Abnormal Positions of the Head. What do they indicate? By Edward Borek, A. M., M. D., Professor of Surgery, etc. A Clinical Lecture delivered before his Private Class of Medical Practitioners, with a case of Dislocation of the Cervical Vertebrae. St. Louis, Mo. Reprint.

Motor Sensations of the Skin. By Prof. G. Stanley Hall and Dr. H. H. Donaldson. Psychophysical Laboratory, Johns Hopkins University, Baltimore. [Reprint].

The Care of the Insane at Home and Abroad. By William B. Goldsmith, M. D., Physician and Superintendent State Lunatic Hospital, Danvers, Mass. [Reprint.]

The Diagnosis of Locomotor Ataxia. By D. A. Morse, M. D., Superintendent of Oxford Retreat, Oxford, O. [Reprint.]

Cottage Homes for the Treatment of Mental Diseases. By L. W. Baker, M. D., Baldwinville, Mass. [Reprint.]

Address to the Maine Medical Association, June 9th, 1885. By Thos. A. Foster, M. D., of Portland, President.

Insanity of the Past. By Dr. Daniel Clark, Medical Superintendent of Asylum for Insane, Toronto. [Reprint.]

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ORIGINAL CONTRIBUTIONS.

**Mechanisms of Control in the Nervous
System and Their Functions.**

A NEW THEORY.

PART III.—By E. F.

IF the hypothesis here indicated be true, and if, therefore, the function of the ganglia on the roots of the sensory nerves and of the ganglia of the sympathetic be identical in kind, we can understand the working of that mechanism, constituted by the spinal segment and its attached apparatus, as exhibited in the phenomena of reflex action. We must regard the ganglia on the sensory roots and the ganglia of the sympathetic as sentinel organs, set to keep watch over the organs subject to their influence; and we must fully realize the fact that the activity of such sentinel organs insures the inactivity of organs over which they keep watch, and that their inactivity permits the organs subject to their influence to become active. And here we must make a distinction between the activity of the cells of a nerve center, or of the secreting tissue of a gland, and the activity of the muscular coats of the arteries of such nerve center or gland. For it is the very essence of the doctrine here

indicated that the nerve force propagated along a sensory nerve, to a ganglion on the root of that nerve, excites to activity the muscular coats of the arteries in that ganglion, and that this activity of the muscular coats of the arteries, by excluding arterial blood from the nerve cells, causes these latter to become inactive. Such a ganglion is therefore active as far as the muscular walls of its arteries are concerned, but inactive as to its nerve cells. So that we can understand how a force propagated from the skin to the ganglion is manifested in the muscular walls of the arteries of that ganglion as a force, which, by shutting off the blood from the nerve cells, prevents the development of nerve force in those cells; and we are no longer confronted with an absurdity. This result is identical in kind with that which Brown-Sequard foresaw, and afterwards demonstrated to be the result of stimulating the severed extremities of the cervical sympathetic nerve. These nerve fibres, being severed from the superior cervical ganglion of the sympathetic, were paralyzed; that is to say, they no longer conveyed nerve force from that ganglion to the tissues subject to their influence. As a result there was afflux of blood in these tissues, attended by the consequences of such afflux. The irritant applied to these severed fibres, taking the place of the nerve force formerly sent out from the ganglion from which they had been separated, and so contracting the arteries, restored the parts to their normal condition. In the case of the ganglion on the root of the sensory nerve, the contraction of the arteries in that organ not only suspends the proper function of the ganglion, but goes farther. It permits the activity of the spinal center. So that we see an irritation applied to the skin, closing the arteries of the ganglion on the sensory root, and dilating the arteries of the spinal center. This latter result is identical in kind with the action of the sub-maxillary gland, induced by Bernard when he irritated the lingual branch of the fifth nerve. Between the point

irritated by Bernard and the sub-maxillary gland, lies the sub-maxillary ganglion, placed there to keep guard over and regulate the blood supply in the sub-maxillary gland. In this view of the matter we can understand and explain the seeming absurdity which Bernard's experiment presented.

It is not unreasonable to suppose that a sentinel ganglion, whose office is to control the blood supply of other organs, may send out nerve fibres to more than one organ. I think it probable that the ganglion on the root of the sensory nerve sends fibres not only inwardly to that segment of the spinal cord subject to its influence, but outwardly to sundry tissues. These latter fibres, perhaps, passing outwardly in the same nerve sheath which protects the sensory fibres, control the blood supply in the parts in which lie the ultimate distribution of such sensory fibres. And it seems to me that Bichat was very near to a just conception of this fact when he described the ganglia of the sympathetic as sending fibres to and receiving fibres from adjacent ganglia and other organs and tissues. To avoid misunderstanding, therefore, in the use of terms—invented in the belief that all nerve fibres are afferent or efferent when considered alone in respect of their relation to the brain or spinal cord—I prefer to speak of a nerve fibre as going from or being received by a nerve center, whether that center be in the brain, in the spinal cord, or in other ganglia. I imagine that in all cases nerve fibres having direct connection with nerve cells, convey nerve force from the nerve center in which such cells are located, and that those fibres not connected with cells in a nerve center, convey nerve force to that center, and there communicate it to the muscular walls of the arteries. When, therefore, I speak of a ganglion on the sensory nerve root as receiving fibres from the sensory organ, and as sending fibres inwardly to the spinal center, and outwardly to the tissues, I imagine the fibres received by the ganglion as communicating directly with

the muscular coats of its arteries, and the fibres sent out by such ganglion as having their origin in and therefore as being in direct communication with the nerve cells in the ganglion. So that we may account for the existence even of bi-polar cells, said to be found in such ganglia. It seems not improbable that an individual bi-polar cell in such a ganglion might send nerve force both inwardly to the arteries of the spinal center, and outwardly to the arteries of other tissues. Of course I do not overlook the fact that certain fibres pass directly through the ganglion. I can understand that such continuous fibres, conveying sensation from the skin of an extremity to the brain, may pass directly from the skin to that ganglion of the brain known as the optic thalamus, which, I believe, is to certain parts of the brain just what the ganglion on the sensory nerve root is to the spinal segment subject to its influence. The optic thalamus, the cerebral convolutions, and the corpus striatum, form, perhaps, a mechanism very similar to that formed by the sensory root ganglion, the spinal center, and the accompanying ganglion of the sympathetic. It is not necessary here to attempt to explain the phenomena of sensation and voluntary motion. It will be seen at once that in the light of the theory here proposed, sensation is simply the result of the activity of certain cells in the brain, brought about by "turning on" a full supply of arterial blood to such cells. The blood is "turned on" to the cerebral convolutions by laying to rest the appropriate sentinel organ—say the optic thalamus. But it is highly probable, that individual cells are controlled by individual sentinel cells in many cases. Indeed it seems probable that the collection of sentinel cells into ganglia is simply a matter of economy. The presence of arterial blood in certain quantity is sufficient, when considered in connection with the inherent aptitudes of the cells capable of sensation, to account for the remarkable phenomena of feeling. In voluntary muscular action, doubtless the corpus striatum,

either directly or indirectly, regulates, at least in some degree, the blood supply in the muscles brought into activity, and therefore in the spinal centers and sympathetic ganglia concerned.

I think we must assume that all organs in the body would be continuously over active, either in function or nutrition, if the blood were permitted to flow freely and continuously through them. It is the office of a sentinel cell or ganglion to prevent the blood from flowing without restraint into the organ over which it is set to watch. A segment of the spinal cord, a gland, the brain itself, or individual cells thereof—all are thus kept in subjection by appropriate sentinel cells or collections of cells. The brain and spinal center would burn themselves out; the glands would consume their own substance, if a free supply of blood were permitted to flow through them continuously. As there is at all times a considerable, though varying pressure in the arteries, it must be evident that the arteries of any organ would be dilated to their greatest capacity, if their muscular walls were not stimulated to contraction by some persistent supply of nerve force. If we consider a living body at rest, we can form a just conception of the importance of the function performed by sentinel ganglia. As long as there is no irritation from without, there is no current of nerve force passing from the skin or other organ of sensation to the ganglia on the sensory nerve roots. Therefore the muscular walls of the arteries in these ganglia are not contracted by their proper stimulus. As they are not stimulated to contract, they are necessarily expanded by the continuous pressure in the entire arterial system. The blood, therefore, flows freely through all such sentinel ganglia. The nerve cells in these ganglia are functioning because of this full supply of arterial blood. The functioning of these cells evolves nerve force, which being transmitted along the fibres going from the cells to the nerve center over which the ganglion is set to watch, communicates there with the muscular

walls of the arteries of that organ, and contracting them, shuts off the blood supply, and so forces that center to remain at rest. While the spinal cord and the brain are at rest because the blood is prevented from flowing freely through them, the animal is motionless and asleep. Irritation from without awakes, first, say, a spinal center, by turning on a free supply of blood to that center, and causes reflex action. Continued with sufficient intensity such irritation awakes the brain, and causes consciousness, by turning on a free supply of blood to that organ. Complete destruction of the sentinel ganglia would leave the brain and spinal cord in continuous action till worn out and dead. We see also in this view of the matter the usefulness of excitement coming from without, as the sentinel ganglia on the sensory nerves can find rest for their nerve cells only through external irritation.

While great difference of opinion still exists in reference to the minute anatomy of the brain and other nerve centers, it seems to me that enough is known to add considerably to the evidence tending to sustain the theory I have rudely indicated.

Dalton calls attention to the fact that the cells of the sympathetic ganglia are characterized by the frequency with which they send out a single prolongation, becoming the source of a nerve fibre; and he recognizes a like arrangement in the ganglia on the posterior roots of the spinal nerves, on the pneumogastric, on the glossopharyngeal, and on the fifth cranial nerve. This is in consonance with the observations of many others. It is held by some that bi-polar cells have been demonstrated in certain sensory ganglia, and multi-polar cells in the sympathetic ganglia. As a pair of these latter send nerve force to the arteries of certain organs of organic life, to the arteries of certain voluntary muscles, to the arteries of the ganglia of the sympathetic lying above and below them, and, perhaps, to the arteries of the spinal center, we could imagine multipolar cells in them and find use for such cells there.

Authorities are practically agreed in their descriptions of the manner in which the anterior and posterior nerve roots seem to be placed in relation with the cells in the spinal center. Dalton expresses the accepted belief as follows: "The anterior and posterior nerve roots accordingly resemble each other in one respect, namely, that their immediate distribution in the cord is the gray substance of the corresponding horns. But the fibres of the anterior root *unite with nerve cells* in the anterior horn, or join the longitudinal tract of the lateral column, while those of the posterior root *show no direct connection with the nerve cells*, but partly cross to the opposite side in the gray commissure and partly become longitudinal in the gray substance of the same side." This is certainly the arrangement we should look for in the light of the theory here presented. The motor nerves should have their origin in spinal nerve cells, and it has been demonstrated that such is the fact. The sensory nerves should not connect directly with the spinal cells, but should be found in connection with muscular walls of arteries in the spinal center. The evidence certainly points to the conclusion that such is the fact. A few fibres may be found directly connected with cells in the posterior horns. If there be such fibres they perhaps convey nerve force from the spinal center to the muscular walls of the arteries in the ganglia on the sensory nerve roots.

As the fibres which constitute the anterior nerve roots are known to unite directly with nerve cells, and as no such direct communication has been demonstrated to exist between nerve cells in the spinal center and the fibres of the posterior roots, the assumption has prevailed that the fibres of the posterior roots, after subdividing into very slender filaments, thus losing their own individuality, pass into and take part in the formation of a diffuse net work into which also enter like slender prolongations sent out by the nerve cells. Somewhere in this diffuse net work, and in some way left to the imagination, the slender filaments of the sensory fibres are

supposed to be put in relation with the slender filaments sent out by the nerve cells. The filaments through which this relation is supposed to be established are in their ultimate distribution, said to be invisible, even under the most powerful microscope, and in the use of the most satisfactory known methods of research. Physiologists, however, being forced by anatomical research, to abandon the old belief referred to by Rosenthal, that the sensory fibres form direct connection with motor fibres assumed at once that such connection is made through the cells and by means of the diffuse net work which the sensory fibres certainly help to form. They simply assumed a connection between the cells and the fibres of the posterior roots which has never been demonstrated by anatomy. They were indeed driven to this assumption because the phenonema of reflex action as understood by them, seemed absolutely to require such connection.

As the demonstration of the actual mechanism through which the functional bond, known to exist, is established between sensory and motor fibres in the nerve centers, has for the last decade been the principal object of the researches of those observers who, from an anatomical point of view, have been engaged in the study of the central nervous system, I quote here at some length from an admirable paper by Prof. Golgi of Pavia, "On the Minute Anatomy of the Central Organs of the Nervous System," a translation of which appeared in the *ALIENIST AND NEUROLOGIST*, for April and July, 1883. Prof. Golgi was so fortunate as to find means—to use his own language—"which, by the fineness and precision of the results, leave far behind all those which, even in the most recent epoch, have been employed by anatomists." As his paper is one of the most recent publications from recognized authority, touching the matters which he considers, the importance of his conclusions cannot be overlooked. Recording the results of his own observations he says:

"The gangliar cells of all the provinces of the nervous system, by a law which has no exception, are in relation with the nervous fibres by means of only one of their prolongations, that which, in homage to the author who first made it the subject of a particular description, has been designated the prolongation of Deiters, or the cylinder-axis prolongation, but which we shall always call the *nervous prolongation*. Wherefore, from the point of view of their specific function all the nerve cells may be considered as mono-polar."

Again he says: "If we exclude the physiological sense, in which all central cells would be mono-polar, as it is always only one prolongation that serves for the specific function of centripetal and centrifugal transmission, it may be said that in general the nervous cells are multi-polar—that is, provided with three, four and five prolongations; but those with ten, fifteen and twenty and even more, are frequent. * * * *

Whatever may be the number of the prolongations, one of them, always unique, is gifted with special characters, which serve to differentiate it from all others. This is the prolongation which, according to Deiters, is usually designated by the name: *cylinder-axis prolongation*, or *nervoso-fibrous prolongation*; a term chosen by Deiters, who holds it as a constant rule that it goes directly to constitute the cylinder-axis of a medullate nervous fibre."

"For different reasons which will be seen further on in this article, and especially for this one, that we hold it as a thing established, that from no other of the prolongations of the gangliar cells besides this one, have the nervous fibres origin, I believe that for designation of the prolongation in question the more simple one, *nervous prolongation*, should be preferred."

"The other prolongations may continue to have the name used by Deiters, *protoplasmic prolongations*, although this may not be the most exact, since the characters of true protoplasm are wanting in them, as they also are in the cellular body."

Elsewhere he says: "The opinion which to-day has chief credit as to the mode of behavior of the protoplasmic prolongations, is that sustained by Gerlach, according to whom they, after very complicate subdivisions, pass into a net work of very fine fibrillæ, non-medullary, from which, on the other part, numerous medullate fibres originate; or otherwise, there concur in the formation of of the diffuse nervous net work, on the one part, the protoplasmic prolongations by means of indefinite subdivisions, and on the other, many nervous fibres, by means of corresponding subdivisions. Granting, however, that this opinion was well founded, we might count upon two distinct modes of connection of the gangliar cells with the nervous fibres. That is, first, by means of the nervous prolongations, which should pass directly without ramifying, to constitute the cylinder-axis of a nervous fibre; second by means of very fine subdivisions of the protoplasmic prolongations, which should become constituent parts of the fine net work of the gray substance."

"That this opinion is attractive, in as much as it would furnish the anatomical explanation of the reflex activities, and of the functional relations between the diverse groups of elements, is a thing too evident; but that it has a right to be collocated among incontrovertible facts, certainly cannot be asserted with any sure foundation. For my part, I do not hesitate to declare that it cannot resist the severe pressure of observation."

Of his own observation he says: "With regard to the direction of the protoplasmic prolongations, I have above noted that in these there is discovered a tendency to be carried into localities where no nervous fibres exist. I shall add now that this fact might lead us to suspect that they rather tend to be brought into relation with connective cells; and here we are reminded that both on the surface of the cortex and in other regions, where the ramifications of the prolongations in question terminate, the tissue is

constantly formed solely of connective cells, which are always found in the closest relation with vessels. *

* * * It is not rare that the impression is given that the protoplasmic prolongations *are inserted into the walls of the vessels by a thin expansion.*"

"It is true that along the whole course of the vessels, and in direct relation with them, there exists a continuous and sometimes a complicate series of connective cells, so that it becomes difficult, or impossible, to say whether the thin expansions of the protoplasmic prolongations above mentioned, appertain directly to the walls of the vessels or to the connective cells, which are applied to the walls."

"In conclusion I believe I am authorized to hold that the protoplasmic prolongations *take no part in the formation of the nervous fibres*; from the latter they always maintain themselves independent; they have on the other hand *intimate relations* with the connective cells and with the *blood-vessels.*"

"Desiring to say a word yet on the functional significance of the protoplasmic prolongations, I believe I am able to assert that their purpose ought to be sought for from the point of view of the nutrition of the nervous tissues; and to speak more precisely, I think that they represent the paths through which the diffusion of the nutritive plasma is brought from the blood vessels and the connective tissue to the essentially nervous elements, to which elements it would otherwise be difficult to say by what path the nutritious material could arrive."

Finally he says: "Both a direct and an indirect derivation of the nervous fibres from the protoplasmic prolongations being excluded, and it being placed in a clear light that these prolongations neither directly, by means of anastomosis, nor indirectly by means of the supposed diffuse net work, can serve as a functional connection between single cellular individualities, and between diverse groups of them, the question is now presented whether, notwithstanding this, a sufficient explanation

of the origin of the nervous fibres of the gray substance can be given; and in the second place whether what has been exposed can furnish a probable response to the problem relative to the functional bond, the existence of which it is a necessity to admit, between the diverse cellular individualities, and between the diverse provinces of the gray substance."

It seems to me that the discovery thus announced by Prof. Golgi, that the protoplasmic prolongations of nerve cells take no part in giving origin to nerve fibres, but do find their way to the blood vessels—either directly, or through the connective cells surrounding the vessels,—goes far to establish the probable truth of the theory I propose. According to his statement, the nerve cell, with its protoplasmic prolongations running outward in search of nutrient fluids, and its nervous prolongation reaching outward to organs subject to its influence, is an individual organism, which may well be likened to a growing plant with its rootlets seeking nourishment, and its stem with spreading branches depending thereon for sustenance and functional activity. We have now only to imagine the supply of nutrient fluids to these rootlets, as regulated by nerve force conveyed to the muscular walls of the vessels by the sensory fibres, which are "ravelled out," or divided into fine "branches," as they approach the very small muscles they are to control. I think the "functional communication," the "functional bond," the existence of which it is a necessity to admit, must be sought from the point of view that the functional activity of the nerve cell is regulated by the supply of nutrient fluid furnished to it, and that this regulation is effected by means of the so-called sensory nerves, which control the muscular walls of the blood vessels into which the protoplasmic prolongations of the cells seem to be "inserted." So that we may go farther than Rosenthal went when he said: "It may be considered established that nowhere is there immediate connection between sensory and motor fibres, but a mediate connection

through nerve cells." We may say that Prof. Golgi has gone far towards demonstrating the fact that "nowhere is there immediate connection between sensory" fibres and nerve cells, "but only a mediate connection through" the muscular walls of the arteries and the nutrient fluids circulating therein. Finally the fact that the sensory nerves, on entering the spinal center, subdivide into very slender filaments, and pass into and take part in the formation of a diffuse network, reminds one of this language of Bell: "Wherever we trace nerves of motion we find that before entering the muscles they interchange branches, and form an intricate mass of nerves, or what is termed a plexus." This is just what the posterior nerves seem to do in miniature, when they approach the minute muscular coats of the arteries in the spinal center.

It has been demonstrated that when a nerve is divided, in the separated part of the nerve, all of its structural elements, excepting the sheath of Schwann, undergo a rapid degeneration, which results in complete atrophy. So that in a few days after its division the nerve has lost both its physiological properties and its anatomical structure. If such separation be made upon the anterior root, the peripheral fibres degenerate, while that portion of the nerve root still connected with the spinal cord remains unaltered. If the section be made in the posterior root between its ganglion and the spinal cord, that portion of the nerve attached to the ganglion remains unaltered, while that which communicates with the cord suffers degeneration, and the degenerated fibres can be traced to the entrance into the gray substance of the posterior horn. If the section be made in the posterior nerve outside of the ganglion, the part of the nerve separated from the ganglion degenerates, while that part of the nerve united to the ganglion remains unaltered.

It seems to me that these well known facts are very significant, as showing at least the independent

existence of the ganglion on the sensory root, and its control of the nutrition of the nerve fibres connected with it. The function which I have imagined for such a ganglion—the regulation of the blood supply in the spinal center and in certain tissues surrounding the sensory nerve fibres in their ultimate distribution—certainly accounts for the degeneration of such fibres when separated from their controlling nerve center. I cannot conceive any explanation of the phenomena mentioned, which does not assign to the ganglia such function as is here indicated. It seems to me certain that the degeneration of that portion of the nerve attached to the spinal cord, when the section is made between the ganglion and the cord, indicates almost beyond doubt that such nerve fibres do not have their origin in cells in the spinal cord or brain, but come from cells in the ganglion. I believe that careful research will demonstrate the fact that the ganglion on the posterior root is an independent nerve center, controlling the nutrition of its afferent and efferent nerves, and that it is set to watch over the spinal center and adjacent tissues, subject to its influence.

Since the foregoing was written I find this language, used by Gowers, (1885): "It was long ago discovered (by Waller), that if the nerve fibres are destroyed at a given point, they undergo degeneration beyond the lesion, and this degeneration extends along them as far as they continue simple fibres. The degeneration is only in one direction, and that is *the direction of functional conduction*; on the side of the lesion from which the fibre conducts there is no degeneration.

* * * *

We speak of nerve cells and nerve fibres as if they were merely connected structures, essentially distinct. They are not really so. The axis-cylinder of each nerve fibre is the prolonged process of a nerve cell, sharing all changes of nutrition that the nerve cell undergoes; suffering with it when the cell is damaged. This is the secret of the secondary degenera-

tion. If a fibre is cut off from its parent cell, it degenerates; the part still in connection with the cell does not degenerate. If the cell is destroyed the whole fibre perishes."

This, if it be received as a statement of established fact, demonstrates the truth of my belief that the ganglia on the sensory nerve roots send nerve fibres outwardly, thus regulating the blood supply and controlling the nutrition of the tissues surrounding the sensory nerve fibres in their ultimate distribution. For if the fibres when separated from the parent cells, degenerate only in the direction of functional conduction, we must believe that certain fibres in the so-called sensory nerve convey nerve force outwardly from the ganglion, as there is degeneration in that direction when the division is outside of the ganglion. Of course we know that certain of the fibres of the sensory nerve conduct impressions inwardly. If, therefore, the statement made by Gowers may be received—and I think it is simply the statement of a truth—we must believe that the fibres conducting impressions inwardly, have their origin in cells in the sensory organs. I think there is sufficient evidence on record to warrant the belief that such is actually the case. As the cells in the sensory organs would suffer upon the derangement of their blood supply consequent upon a division of the sensory nerve outside of the ganglion, both such cells and their inwardly conducting fibres would degenerate. I believe it will be found, upon more careful examination, that only a part of the fibres remaining in connection with the ganglion, when the division is made outside of that organ, maintain their integrity. I think it not improbable that the separated extremity of a fibre having its origin in a sensory organ, degenerates along with its parent cell, and with that part of the fibre still in connection with the cell.

It seems to me that this very rude presentation of the matter may throw some light upon the remarkable phenomena of reflex action, "a satisfactory explanation

of which," in the language of Van der Kolk, "has constituted so great a stumbling block to physiologists."

IV.

Some difference of opinion still exists among anatomists as to the structure of the glands. Some are of opinion that the essential elements of a secreting structure are granular cells; and it was the presence of such cells, in nerve centers, that led Malpighi and others to the belief that the brain is a secreting organ. Bell taught that the glands are composed chiefly of arteries, and he believed that the solid parts of the body ought to be considered as secretions equally with the matters which flow from the ducts of the glands, and that all living properties are continued in the various tissues through the influence of the circulating blood. According to this theory the liver secretes bile and the kidneys secrete urine, not because the organs have a certain form, or certain length of vessels, but because the affinities of the constituent parts of the glands are controlled by the living principle of the blood. This theory is alike consistent whether the essential element of the secreting structure be regarded as consisting of granular cells, or as composed chiefly of arteries, and was taught long before the time of Bell. Blumenbach, Professor at Göttingen in 1781, maintained that in every animal and vegetable organism there is, intimately connected with it, during its whole life, a certain innate and ever existing, "instinct," which he termed the *nisus formativus*, in virtue of which animals and vegetables attain their proper and fixed form. When this is attained the same force maintains it, and, when injured, repairs it, as much as may be. Herbert Spencer teaches—and his doctrine is generally accepted as true—that the repair of wasted tissue may be considered as due to forces analogous to those by which a crystal reproduces its lost apex, when placed in a solution like that from which it was formed; and that if in the case of a crystal we may assume that the

whole aggregate exerts over its parts a force which constrains the newly integrated atoms to take a certain form, we must in the case of the organism assume an analogous force. "This is not an hypothesis, but simply a generalized expression of facts." "We must," says Mr. Spencer, "infer that a plant or animal of any species is made up of special units, in all of which there dwells the intrinsic aptitude to aggregate into the form of that species; just as in the atoms of a salt there dwells the intrinsic aptitude to crystallize in a peculiar way. It seems difficult to conceive that this is so, but we see that it is so." Mr. Spencer recognizes the fact that this tendency is not to be found in the chemical units or the morphological units of organized bodies. He conceives it as possessed "by certain intermediate units," which he terms "physiological."

If the specialized molecules of each organ of a living body have the aptitude to select from the blood materials suitable to their uses, and to construct therefrom other similarly specialized molecules, we may reasonably infer that the action of a gland depends upon an analogous tendency. I cannot escape the one conclusion, if I admit the other. I think there is little doubt of the correctness of either.

If then the forces peculiar to the crystal, when it is bathed in a solution like that from which it was formed, tend to restore a lost part; if the forces peculiar to the vegetable organism, when it is bathed in its own sap, tend to restore a lost part—in both cases without the help of any mysterious nerve force—we may safely assume that animal tissues are renewed, and secretions are selected from the blood by analogous forces, and without direct assistance of nerve power.

Huxley has called attention to the fact that the circumstance that all the tissues of the animal body are outside the vessels, by no means interferes with their being bathed in the fluid which is inside the vessels, for the walls of the capillaries are so exceedingly thin

that the fluid contents readily exude through them and permeate the tissues in which they lie. The blood being "turned on," by the working of the machine composed of nerve cell connected by nerve fibre with muscle fibre, the work of nutrition or secretion goes on without further assistance from the nerve force.

Assuming, therefore, that the presence of the arterial blood is sufficient to account for the activity of a gland, let us examine carefully the discovery of Bernard, which prevented Brown-Sequard from reaching the conclusion to which his observation seemed to lead him, prior to Bernard's experiment. At the risk of being tedious, I go over, briefly, the facts involved in this experiment, which I consider, in its effects, one of the most important known to modern science.

About thirty years ago, Prof. Bernard found that section of the cervical sympathetic nerve was constantly followed by a considerable afflux of blood in the parts of the head to which the sympathetic goes. Soon after, Brown-Sequard, believing this to be due to paralysis of the blood-vessels caused by section of the sympathetic, showed that galvanization of that nerve produced the reverse of the effects of the section. The relaxed blood-vessels contracted and the quantity of blood and the temperature diminished. This discovery, certainly one of the most important since that of Harvey, established, beyond doubt, the fact that the arteries are controlled by nerve force. Brown-Sequard, as he has declared, was inclined at that time to think that the influence of the nerves on the blood-vessels, causing them to contract is sufficient to explain the phenomena of nutrition and secretion. But soon afterwards, Bernard showed that section of the lingual branch of the fifth nerve was followed by effects the reverse of those produced by section of the cervical sympathetic, and that galvanization of the lingual, after its section, caused the vessels of the tongue and of the sub-maxillary gland to dilate, and the gland itself

to take on its functional activity. Brown-Sequard, having verified the experiment, abandoned the belief which had before seemed to him unavoidable, viz: that there is but one mode of action of the nervous system upon the production of the phenomena of nutrition and secretion, and went over to Bernard's view of the matter, in the following declaration:

"We have said that there are two modes of action of the nervous system upon the production of the phenomena of nutrition and secretion. By one of these actions the nervous system determines an increase in the attraction of blood by the living tissues, and in this case the phenomena are accompanied by a dilatation of the blood-vessels; while the reverse exists when the nervous system, instead of acting upon the parenchyma of the tissues, acts upon the walls of the blood-vessels and produces a contraction. In the first case, the quantity of blood passing through the part on which the nervous system has acted is increased, while in the second case it is diminished; in the first case the secretions are increased, in the second diminished; in the first case nutrition is more active and there is a tendency to hypertrophy and an augmentation of the vital properties of the nerves and muscles, in the second case nutrition is not active and there is a tendency to atrophy of nerves and muscles; lastly, in the first case there is an augmentation of temperature, while in the second there is diminution. There is, therefore, the most complete difference between these two nervous influences."

This change of belief was the result of Bernard's experiment, which ignored entirely the sub-maxillary ganglion of the sympathetic—after the manner of the ancients. As I wish to avoid, as before stated, the appearance of fitting facts to theory, I quote here Dalton's description, written in 1882, of facts and phenomena which have attracted so much attention since Bernard's experiment seemed to settle a vexed question:

"The third (sympathetic ganglion in the head) is the sub-maxillary ganglion connected with the sub-maxillary gland. It communicates with the superior cervical ganglion of the sympathetic by filaments accompanying the external carotid and facial arteries. It derives its sensitive filaments from the lingual branch of the fifth pair, and its motor filaments from the facial nerve by the chorda tympani. Its branches of distribution pass mainly to the sub-maxillary gland and duct. * *

* * The vascular supply of the tongue and sub-maxillary gland receives nerve fibres from two sources, namely: First, sympathetic fibres coming from the carotid plexus, and passing with the arterial branches to their distribution, and second, fibres coming from the facial nerve through the chorda tympani, which joins the lingual branch of the fifth pair, and are thence distributed to the tongue and sub-maxillary gland. Section of the sympathetic filaments causes relaxation of the blood-vessels, increased circulation, ruddy color of the venous blood, and abundant salivary secretion, while galvanization of the peripheral extremity produces contraction of the blood-vessels and general reversal of the foregoing results. But if either the lingual nerve or the chorda tympani above its junction be divided, the effect is a diminution of the circulating current, both in the tongue and maxillary gland. On the other hand, galvanization of the peripheral extremities of the nerves causes dilatation of the blood-vessels and all the phenomena of increased circulation. It must be admitted that the dilator nerves exert a direct local influence which causes relaxation of the blood-vessel."

These statements, made in the belief that the accepted doctrine is correct, and that there are two kinds of nerve "influence," one of which contracts the arteries and the other of which causes them to dilate, furnish, nevertheless, evidence satisfactory to my mind, that there is but one kind of nerve force—that which causes muscles to contract.

I believe that the irritation of the divided sympathetic filaments sends nerve force directly to the arteries of the salivary gland, and of other tissues adjacent and subject to their influence, the filaments being continuous from the point irritated to the gland and other tissues. I also believe that irritation of the filaments of the divided chorda tympani, a motor nerve, either above or below its junction with the lingual, sends nerve force only to the arteries of the sub-maxillary ganglion of the sympathetic, which "is connected with the sub-maxillary gland by its nerves of distribution, and receives motor filaments from the chorda tympani." This sub-maxillary ganglion is the sentinel ganglion set to watch the sub-maxillary gland, to prevent it from doing too much work. This guard-duty is perhaps shared by the superior cervical ganglion of the sympathetic, as section of the sympathetic above that ganglion produces vascular congestion in all the parts above the division on the corresponding side. This I have not, however, seen so clearly demonstrated as to determine, beyond question, that the increased salivary secretion resulting from section of the cervical sympathetic is not also from the parotid gland, subject in some degree to the cervical ganglion. Whether this be so, or not, it may be demonstrated that the extirpation of the sub-maxillary ganglion leads to complete and permanent dilatation of the arteries, with all the consequences thereof in the sub-maxillary gland, and in that part of the tongue subject to the influence of the nerves of distribution from that ganglion. Division of the fibres going from the sub-maxillary ganglion to the sub-maxillary gland and tongue would, I believe, produce the same results. Irritation of these divided fibres would, I have no doubt, close the arteries of the gland and tongue, just as irritation of the fibres of the divided sympathetic closes the arteries subject to their influence.

If Brown-Sequard had held firmly in his mind the fact that each ganglion of the sympathetic sends fibres of distribution to some special organ, and certainly for

some special purpose, he would, I believe, have discovered the error hidden in Bernard's experiment. Again, to avoid seeming to pervert facts, I quote Dalton, who uses the following language: "The central part of the sympathetic system is a double chain of ganglia, on the sides of the spinal column, united with each other by longitudinal filaments. Each ganglion is connected by motor and sensitive fibres with the cerebro-spinal system. Its nerves are distributed to glands and mucous membranes, mostly destitute of general sensibility, and to muscular fibres which are independent of the will. The sympathetic ganglia are situated in the head, neck, chest and abdomen; and in each of these regions are connected by their nerves of distribution with special organs."

This is only in effect what many have said before, and it seems to me that this description of the sympathetic ganglia suggests the office which I have assigned to these organs. Certainly the existence of the sub-maxillary ganglion should not be ignored when repeating Bernard's experiment. It is not necessary to consider here the action of other ganglia of the sympathetic upon other glands or tissues. The general plan is, I believe, the same throughout the body. We may consider the fact, however, that irritation of the nerves of the kidney has the immediate effect of stopping the secretion of urine, as noted by Huxley and others, as in the nature of cumulative evidence, as is also the fact that on section of the sympathetic nerve of one side of the neck of the horse, the temperature of that side of the head rises and sweat pours out abundantly over the whole surface affected. But as nerves have not been found in sudoriferous glands, this latter fact seems more than simply cumulative evidence, and goes far to warrant the belief that the activity of a gland is the result, not of nerve force directly affecting the gland, but simply of certain chemical reactions taking place because of an afflux of blood in the active organ. In the face, however, of such evidence, the accepted belief is thus formulated by

Rosenthal, in describing the action of the so-called secreting or gland-nerves: "When these nerves are irritated, the appropriate gland begins to secrete. The connection of these nerves with the glands must, from a physiological point of view, be entirely similar to that of the motor nerves with the muscles. When the latter are irritated the muscles connected with them at once pass into a state of activity. Just in the same way the gland nerves, when they are irritated, cause the gland connected with them to pass into a state of activity. A gland, unlike a muscle, cannot contract; when it becomes active it secretes a liquid, this being its activity."

I am not unmindful of the fact that division of the sympathetic nerve, below the superior cervical ganglion, has, in some cases, seemed to cause a slight congestion of the parts above and subject to the influence of this ganglion, and that this seems to show that the force holding the vascular muscles in contraction comes from the spine. But it can be demonstrated that such congestion is not permanent. The irritation set up in the severed nerve fibres by the act of separation and the effect of this irritation upon the ganglion will account for the slight and transient congestion, in my opinion. On the contrary it may be shown that extirpation of the superior cervical ganglion produces complete and durable vascular relaxation in the parts above, just as extirpation of the sub-maxillary ganglion will produce complete and durable congestion in the sub-maxillary gland and tongue.

Such congestions, resulting from the extirpation of sentinel ganglia, have been noted by many observers. Phenomena, certainly very similar in kind, attend a transverse section of the spinal cord in the cervical region. According to numerous observers, such section causes marked vascular relaxation throughout the body, as if all the vaso-motor nerves had been divided in descending from above. This certainly indicates some such function, performed by the basal ganglia of the brain as I have

assigned to the ganglia of the sensory nerve roots and of the sympathetic.

I add one other fact, noted by Ranney and others, viz: that degeneration of the ganglionic cells of the anterior horns of the spinal cord, creates the train of symptoms attending "progressive muscular atrophy," accompanied by a fall in temperature over the affected muscles. I submit this as sufficient to satisfy an impartial observer that at least one office of such spinal cells is to induce indirectly, by their activity, a relaxation of blood-vessels in, and so maintain the temperature and nutrition of, parts subject to their influence. This would seem to leave the office of contracting such blood-vessels to the ganglia of the sympathetic, and there I think it should be looked for. So that we must believe that it is not the excitement of a so-called gland nerve which causes the gland to become active, but that on the contrary, the activity of the gland is the result of the removal of excitement from the gland nerve, as happens when the sentinel ganglion is extirpated. So also we must believe that "progressive muscular atrophy," with the accompanying fall in temperature of the parts affected, is the result of prolonged activity of the sentinel ganglia, which being no longer controlled by the degenerated spinal cells, keep up a continuous contraction of the arteries subject to their influence, and so starve the helpless organs to death.

V.

[The first half of this paper, which was published in January last, was sent in proof to Herbert Spencer, and I received in response the following note:

38 QUEEN'S GARDENS, }
BAYSWATER, LONDON, February 3, 1886. }

DEAR SIR:—I am obliged by the proof you sent me, and think the speculation it contains well worth pursuing. Perhaps I am rather a biased judge in saying this, for it is akin to one which I myself propounded to a physi-

ologist some fifteen years ago, concerning the retardation or arrest of the heart's action from irritation of the vagus. My suggestion was that in the vagus were contained vaso-motor fibres, some of which were distributed to the ganglia of the heart, with the effect that when there is irritation of the vagus, these fibres cause constriction of the blood-vessels permeating these ganglia, and by shutting off their supply of blood, stopped more or less completely the nervous discharge to the heart muscles proceeding from these ganglia. But my friend rather threw cold water upon my view, and I did not think anything more about it. I am faithfully yours,

HERBERT SPENCER.

EMORY FOSTER, Esq., St. Louis.

Mr. Spencer, when he wrote this note, had read only the first-half of my paper printed in January, which contained no reference to the heart's action, and he had in no way knowledge of my belief touching that matter. I therefore print it here so that it may precede the views I had formulated concerning the action of the heart before I received it. The letter and the following pages should be read with this in mind. It will be seen that I had already reached the conclusion from Mr. Spencer's published works that his views concerning the action of the heart were identical with those I had attempted to express. I was therefore much gratified when I found my belief justified. For this letter is the more significant in that it contains not only the present belief of the writer, but also the information that this belief has remained in his mind near a score of years. The fact that this recognized leader of modern thought, years ago held such view and still thinks like speculation "well worth pursuing," is evidence that the doctrine is something more than attractive. The fact that his published works abound in evidence of the hold this view had upon his mind, satisfies me that the "cold water" of the physiologist really failed of its object. I submit this letter as evidence that, in so often quoting Mr. Spencer in support of the theory proposed, I have not misunderstood his teachings.]

We come now to consider the action of the so-called retardatory nerves. For as investigators have found no difficulty in believing that irritation of a nerve may directly cause dilatation of the arteries, so also they have found no difficulty in believing that the irritation of a certain nerve directly retards or inhibits the contraction of the heart. Dalton has this description of the phenomena of retardation: "If the heart be exposed in a warm-blooded quadruped by opening the chest, and the circulation maintained by artificial respiration, the action of the pneumogastric may be studied by applying to its trunk the poles of a galvanofaradic apparatus. On stimulating the nerve in this way with an interrupted current of moderate strength, the first visible effect is a diminution of frequency of the cardiac pulsations. If the intensity of the current be increased, the heart acts still more slowly; and with a further increase of intensity it stops; and it stops in a condition of muscular relaxation, lying flaccid and motionless. If the nerve be divided, only stimulation of the peripheral extremity arrests the heart's action. *

* * * In these respects the influence of the pneumogastric nerve on the heart resembles that of a motor nerve on the muscles of the limbs. The difference between the two is in their effect. An ordinary motor nerve, when stimulated, causes contraction of the corresponding muscle; stimulation of the pneumogastric nerve, as connected with the heart, causes relaxation." Huxley thus describes these phenomena: "Electric shocks, sent through the pneumogastric nerves so as to irritate them, stop the heart at once, and it is found quiescent, with relaxed and distended walls." Rosenthal has the following: "It is common knowledge that the heart beats ceaselessly during life. Now, if a certain nerve which enters the heart is irritated, the heart ceases to beat, recommencing when the irritation of the nerve is discontinued. This remarkable fact was discovered by Edward Weber, who spoke of the

phenomena as 'retardation.' It is curious that a nerve can, by its activity, still a muscle which is in motion."

We have then to consider phenomena presenting muscular relaxation, and certainly functional inactivity, as the result of irritation applied to a certain nerve which enters the heart. It has been demonstrated that the fibres which exert this remarkable influence are motor fibres from the spinal accessory taken up near their origin and carried in the bundle of fibres known as the pneumogastric. So that we have to consider the result of the activity of motor nerve fibres.

I submit that it is no more curious that a nerve, by its activity, can still the heart, than is the fact that a "gland-nerve," by its activity, can dilate the arteries of the gland subject to its influence. And it does not in any way assist us to comprehend the phenomena of arterial dilatation as the result of irritation applied to a "gland-nerve," to say that the activity of the irritated nerve produces activity in the gland just as irritation of a motor nerve produces activity in the voluntary muscle subject to its influence. And even granting that such an explanation has any meaning, we can derive no comfort from it in the case of the "retarded" heart, laid to rest by the activity of a nerve. If we found the heart spasmodically contracted and so prevented from pulsating, we could believe that the nerve force, conveyed by the irritated nerve had so manifested itself in the muscles of the heart, and had so forced it to be still, though not at rest. As it is, in the light of the theory taught by modern mysticism, we are asked to believe that the heart is called into a condition of rest by the direct activity of an excited nerve.

To arrive at a just conception of the phenomena attending this remarkable manifestation, we should first know as much as may be known of the mechanism of the heart and its nervous system. I quote again from Mr. Huxley: "There are three sets of nerves in the heart. One set are supplied by ganglia in its substance.

Another set come from the sympathetic nerve. A third set are branches of the pneumogastric nerve which come straight from the brain. There is every reason to believe that the regular rythmical succession of the ordinary contraction of the heart depends upon the ganglia lodged in its substance, as this goes on when the heart is out of the body. There is much reason to believe that the influence which increases the rapidity of the heart's action is excited through the sympathetic; and lastly it is quite certain that the influence which arrests the heart's action is supplied by the pneumogastric. *

* * * Men and women often faint and sometimes die from sudden joy or sorrow. The brain gives rise to a 'something,' which arrests the heart as dead as you stop a stop-watch with a spring."

Now, if there be truth in the theory which I present, this "something," is nerve force, which being conveyed by the so-called "retardatory" nerve, is communicated to the muscular walls of the arteries in the ganglia lodged in the substance of the heart. The contraction of these muscular walls lays the nerve cells in these ganglia to rest, and the nerve force no longer passing thence to the muscles of the heart, that organ is also at rest, "with relaxed and distended wall." A cessation of this irritation conveyed by the "retardatory" nerve, permits the arteries in the ganglia to relax; the blood again bathes the nerve cells in these organs, and nerve force again being evolved in and transmitted from the ganglia in the heart to the muscles of the heart, that organ again passes into a condition of activity—again contracts.

It seems to me that the heart with its enclosed ganglia is simply a very perfect automatic machine, constituted by the union of nerve cell through nerve fibre, with muscle fibre. For we must believe that the nerve cells in the ganglia located in the heart, enter into direct communication with the muscle fibres of the heart, through prolongations, or nerve fibres, how-

ever short they may be. This machine, it seems to me, passes into a condition of activity whenever the nerve cells in its ganglia are bathed in arterial blood. The nerve cells in the ganglia possess the intrinsic aptitude to evolve nerve force when supplied with the proper nutrient fluid. Nerve cells with such intrinsic aptitude will of course evolve nerve force continuously when supplied with arterial blood. To suspend this evolution of nerve force the aptitude of the cell must be destroyed or the blood supply must be shut off. Conceive therefore a machine which, when brought into a condition of active manifestation of power, will shut off the source of its activity and you will begin to understand the plan upon which this wonderful automatic machine, known as the heart, is constructed.

Let us consider more carefully the several parts of this admirable mechanism. Bell says: "The contractility of the muscles is an original endowment of living matter, imparted in a way which we cannot know, and so attached to the organization of the muscular fibre, that where its organization is destroyed the power is lost.

* * * * The latent power of muscle, the *vis insita*,—may be brought into full action by various stimuli. The acting power put into action, or the proof of the *vis insita*, upon applying stimuli, is called the 'irritability' of muscles. The muscular parts have all the irritability of the system, while the nerves have all the sensibility of the system, and have the power of exciting motion without the power of motion." This statement of the matter may be received as correct. I do not believe it can be materially improved. The two attributes of sensibility and contractility are possessed by all but the very lowest animal types, and these two attributes are the respective bases of the sensitive and motive faculties developed in the highest animal types. The senses exhibit subdivisions of the one, and the muscles specializations of the other.

Bell thus describes the development of the heart:

"The heart is in all creatures the most irritable part; it is the first to live and the last to die. In the very first days in which the heart appears in the chick, while yet its parts are not distinguished, and the 'punctum saliens,' is the only name we can give it, the heart, even in this state, feels the slightest change of heat or cold: it is roused by heat; it languishes when cold; it is excited when heated again."

We must then contemplate a minute mechanism; so microscopically small as almost to escape observation, yet endowed with the two attributes known to distinguish muscle and nerve substance. And this minute organism is so constructed that it not only displays the phenomena attending the development of nerve force by nerve cells, and the transmission of such force to muscle, with the resulting contraction of that muscle, but it does all this without receiving nerve force from without. And more than this, it actually regulates automatically the evolution and transmission of the power which keeps it pulsating. And here the fact that heat increases the frequency of the pulsation while cold retards it, suggests modification of tissue wrought by the direct contact of the nerve cells with the surrounding nutrient fluid in which they are suspended, as the source of this power. For although these cells are lodged in the substance of the heart, it must be supposed that the surrounding nutrient fluid has access to them when the muscles of the heart are relaxed. When the modification wrought by the contact of this fluid with the cells has evolved nerve force, and that nerve force, communicated to the muscles of the heart, has brought them into a condition of activity, their contraction around the nerve cells shuts off the nutrient fluid, puts an end for a time to the evolution of nerve force, and permits the nerve cells to rest. This rest of the cells permits the muscles of the heart to relax. These processes repeated as long as life continues, constitute the activity of the most beautifully working automatic machine known to man. It seems to me almost self-

evident that the rythmic action of the heart is the result of the mechanical arrangement of muscle fibres and nerve cells, the former enclosing the latter. I cannot escape the conclusion that the contraction of the heart is the result of a neural discharge from the ganglia lodged in its substance, and that this neural discharge results from the modification of the nerve cells in these ganglia, wrought by substances carried to them in the blood. Of course any mechanical obstruction, preventing the blood from reaching the nerve cells, will prevent such neural discharge. Contraction of the heart, is itself, I think, such an obstruction, and I do not feel that it is necessary to search farther for the cause of the rythmic action of this automatic machine, which is "the first to live and the last to die." The so-called retardatory nerve does, I believe, regulate the size of the arterial tubes conveying the blood to the ganglia in the heart's substance, and so regulate the rythmic pulsations of that organ, and bring them into harmony with the requirements of the body, as affected by its manifold environments. Excitement conveyed by that nerve may, and often does, entirely prevent the activity of the ganglia in the heart, by shutting off their blood supply. It is in such circumstances that the heart lies motionless with relaxed and distended walls. The fibres proceeding from the sympathetic regulate the supply of blood to the muscular fibres of the heart, and so maintain their contractility. But the heart is essentially an independent automatic machine, as is clearly seen when it is separated from the body. Its rythmic motion in such circumstances, continues as long as the nutrient fluid remaining in the vessels of the heart continues to incite activity in the nerve centers, when permitted to remain therein by the momentary relaxation of the muscles of the heart. Until the nutrient fluid no longer flows into and out from these nerve centers, with the relaxation and contraction of the heart, that organ continues its rythmic action. I call attention here to

the fact that Herbert Spencer, without going into a detailed account of the mechanism and action of the heart, has thus formulated the belief which I have attempted to declare in the light of the hypothesis indicated in this paper: "That the heart may act, it must from instant to instant be excited by discharges from certain ganglia; and the discharges from these ganglia are made possible, only by the conveyance to them from instant to instant of the blood which the heart propels."—[*Principles of Biology.*—1866.]

An attempt to set forth the almost numberless complications which result from the action, one upon another, of the several small nervous systems which go to make up the entire nervous system of the body, would require a volume in itself. I can only indicate here the fact that the sundry mysterious complications which indeed gave the name "Sympathetic," to that double chain of ganglia running through the great cavities of the body, may be understood and explained satisfactorily in the light of the theory here submitted. For if there be truth in this theory, the activity of a ganglion produces inactivity in all organs subject to its influence. And as each ganglion of the so-called sympathetic receives fibres from and sends fibres to adjacent ganglia, both upwards and downwards, it must at once appear that the activity of any given pair of sympathetic ganglia, means inactivity of certain others. As inactivity of these latter must permit the activity of still others, a condition of alternate activity and inactivity in sympathetic centers, along the entire length of the chain, as the result of excitement induced in one pair—is not beyond conception, and is indeed altogether probable. So that we may, by careful investigation, be able at last to explain why activity of function in a given organ is always accompanied by activity of function in one or more quite distant and seemingly unrelated organs. We may also arrive at a proper conception of the "not well understood principles of correlation

and economy of growth," which Mr. Darwin considered important factors in the development of animal forms. The limits of this paper prevent more than this passing reference to matters which in themselves are of surpassing interest to the human race, in its progress towards the highest possible type of animal life.

Since the foregoing was in type, I have received a communication from one of the most eminent of living physiologists, to whom I sent the first half of this paper. I regret that this must go to press before I can obtain permission of the writer to print his letter. I may say, however, he declares that at one time he had views similar to mine. He mentions as one of the reasons which induced him to give up the idea that the presence of a large quantity of blood in a part, is the principal cause of its being put in action, the fact that without any blood, all the tissues and organs endowed with dynamic powers (the nervous system and contractile tissues) can be excited to act, and sometimes to produce most energetic actions. He says he has given up the notion that inhibition of the heart's action depends on a contraction of blood-vessels, since Hyrtl discovered that there are no blood-vessels in the muscular tissue of the heart in frogs and other animals. Hyperæsthesia, which he long considered as due to an enlargement of blood-vessels and the presence of more blood in the spinal cord, he is now obliged to look upon as chiefly due to a mere dynamical change in the nervous system, absolutely independent of the presence or the absence of blood.

I have believed that a nerve center ceased to act when deprived of blood. But as such center must retain its anatomical integrity to manifest its proper activity, I have been unable to demonstrate the truth of my belief. As Hassall saw a tolerably active movement of blood in several of the small arteries of the tongue of the frog, after the detached fragment of that organ had been immersed in water "during the whole night," I have felt it not unreasonable to assume that the activity manifested

by a detached nerve center is due to a certain quantity of blood remaining in its vessels. This assumption has seemed even more reasonable when I have seen the injection of blood into the arteries of a nerve center, in which reflex action had ceased, speedily followed by a return of that faculty. I have thought in such a case that the blood alone incited the nerve cells to action, as I have believed the blood alone renews and maintains the functional activities of a severed extremity, when replaced and properly secured. If I have been in error in this matter, the theory I have propounded must be modified, but not necessarily abandoned. I could not, however, if forced so to modify my belief, account for the phenomena referred to by Dr. Carpenter who says: "The human fœtus has come to its full size, so that its heart must have regularly acted without either brain or spinal cord."

The discovery of Hyrtl does not prevent me from believing that the blood in some way enters the substance of the heart of the frog, and that the supply of blood to the ganglia in that organ is regulated by the contraction of muscles. The minute anatomy of nerve centers is far from being demonstrable even by the most recent methods of research. We may look for new and most important discoveries in this field with improved methods. Only a few years ago Kolliker declared that "many arteries are wholly without nerves, as those of the cerebral and spinal substance." This does not prevent the belief that the blood supply of the brain is controlled by the contraction of arteries. Some observers yet hold with Van der Kolk that "the gray substance of nerve centers contains in many places ganglionic cells, from some of which issues an extremely fine net work of ramified filaments, often very difficult to distinguish from the interposed blood-vessels." I think we may expect, with some confidence, the demonstration of a muscular apparatus which controls the supply of blood in the heart of the frog. I think not so probable a demonstration of the:

direct connection of sensory nerve fibres with nerve cells in the spinal centers.

I incline to the belief that hyperæsthesia may be partly due to increased aptitude of the nerve cells to perform their functions. Certain substances introduced into or formed in the blood seem to exalt the aptitudes inherent in certain tissues, while other substances seem to diminish or entirely destroy such aptitudes. The limits of this paper forbid further consideration of this most interesting subject. I add only, in response to inquiry from another physiologist recognized as authority, that the fact that convulsions follow severe hemorrhage, is not in my opinion, evidence that a decreased supply of blood in the spinal centers may cause increased functional activity in those centers. The influence excited by the normal blood-pressure in the arteries, in calling into activity certain centers of control in the nervous system, is referred to in the body of this paper. I think many of the symptoms of hysteria may be due to abnormal blood-pressure, as I have seen them quickly disappear with the restoration of the normal arterial tension.

I am indebted to the editor of the *ALIENIST AND NEUROLOGIST* for the use of his excellent library and for apt suggestions in the preparation of this paper for publication, and to Dr. I. N. McNutt, of Jefferson County, Missouri, who since 1869 has aided me in research and observation.

A Case of Progressive Locomotor Ataxia (Posterior Spinal Sclerosis).

By EDWARD C. MANN, M. D., New York,

Member New York County Medical Society; Superintendent Sunnyside Home for
Nervous Invalids, 204 Leffert's Place, Brooklyn, N. Y.

THIS disease is one in which, it is needless to state, has for the most constant anatomical lesion grey degeneration or sclerosis of the posterior root zones and columns of the spinal cord. Mr. A., of Pennsylvania, 40 years old, applied to me for treatment early in 1884, with the following history: Family history good; occupation, conductor on a railroad; habits, fairly good. No history of syphilis. Although I regard this disease as one of the tertiary manifestations of syphilis, it apparently was not so in the case here related. The patient was married to a young wife and used tobacco. This patient first began to experience lightning-like lancinating pains for a year or two before any other symptoms. The pains generally shot suddenly into the thighs and ran down the thigh and leg. The patient compared the pains to the stab of a knife. The intervals of freedom from pain sometimes lasted for days. There was also a sensation as if the waist was encircled by a tight rope. There was numbness and tingling of the extremities. The patellar-tendon reflex was absent from an early period. The patient complained from the first of great fatigue and was easily tired on slight exertion. There was inability to stand with the eyes closed and he could not walk in the dark; attacks of vertigo were frequent. There was a diminution in the acuteness of vision, and the optic discs presented, upon ophthalmoscopic examination, a very suspicious pallor. They were not white and glistening as in distinct white atrophy. There was slight deafness. There were severe gastralgic attacks with vomiting, coming on frequently.

The lightning pains, amaurosis and absence of the patellar-tendon reflex were in existence for some time before the motor inco-ordination was thoroughly established. The patient, when we first saw him, could only walk with the help of a cane, and then with the greatest difficulty. He was now much troubled with constrictive pains around the abdomen and down the thighs. He could not feel the floor distinctly with his feet. The disease had lasted five years when the patient presented himself for treatment. Our prognosis was unfavorable, but we said we would do what we could to help him. The patient was put on cod liver oil and a combination of iron and phosphide of zinc, getting two grains of iron by hydrogen and $\frac{1}{8}$ of a grain of phosphide of zinc, thrice daily after meals. Galvanism of the spine and static electricity in the form of sparks taken from the lower extremities was used with caution daily. Improvement in the symptoms began to be manifest in one month. The iron and phosphide of zinc was now stopped, and for the next month iodide of potassium replaced it; improvement still manifest. Electricity continued daily. At the end of the second month the tribasic phosphade of silver took the place of the iodide, in $\frac{1}{8}$ grain doses. The improvement now was more rapid. Electricity still continued. The patient went to Ocean Beach for the summer, continuing the treatment with the exception of the electricity. The pains had by this time completely disappeared and there was great improvement in the motor inco-ordination. The vision never regained its normal acuteness, but the amaurosis was in this case always slight. The patient would not submit to my ordinary treatment by rest in bed, but walked every fair day out of doors. Two years have nearly passed, and this patient considers himself a well man. He has gone into a light easy business, feels well, eats well, has no gastric trouble, no pains, sleeps well and walks very well. We think we may fairly consider this as an arrest of this generally intractable disease, and although we would not presume to say positively that the disease will never

return in after years, we hardly think it will do so. Certainly, a very favorable result was obtained.

Since the above manuscript was sent to the printer, we have again the patient referred to us. He walks without a cane and with a perfect gait, and has, so far as we can discern, made a perfect cure.

Report of a Case of Melancholia, with Stupor of Five Years' Duration.*

RECOVERY—SYNOPSIS OF PATIENTS—ASYLUM EXPERIENCE.

By ORVILLE JAY WILSEY, M. D., Binghamton, N. Y.

MR. H. was admitted to the Binghamton Asylum for the Chronic Insane, November 10th, 1882, with the following brief history:

Aged, 45 years; married; United States; editor; second attack. First commenced in 1879; was of two months' duration; second commenced in October 1880, and has been continuous; stationary demented; caused by ill health and overwork during a political campaign.

When admitted he would not speak or in any way give expression to his thoughts or feelings. He sat in one position with his hands folded; head forward and eyes cast on the floor, from morning till night, and moved only when led from place to place by the attendants.

His physical health was very good; he ate a moderate quantity and was very well nourished. The night watch always reported him quiet and sleeping well. He remained in about this condition until July 6th, 1883, when, for the day, he seemed brighter and appeared to notice those about him. Several times he was visited by his wife and friends, but he never seemed to take any notice of their presence or the time of their departure.

During the month of February, 1884, he refused solid food, but took a moderate quantity of liquid. He lost strength and flesh very fast, until he resumed the regular diet, which was in about four weeks; he at once commenced to improve physically and in time became as strong and hearty as before.

*Read before the Medical Society of the County of Broome, January 5th, 1886.

During the month of September he had a severe attack of *herpes zoster*, but made a good recovery and was very comfortable till the last of October, when he was taken with pleurisy. The effusion was so great that it interfered very much with his respiration. It was not absorbed until late in December; he was then very feeble and had a bad cough.

During this sickness he refused all extra food, but took the regular diet as furnished other patients. He still refused to speak, but occasionally showed, by the expression of his face, that he was in severe pain.

He was visited by his wife June 23, 1885. At this time he had a bad cough, was very feeble and could just walk across his room with assistance. We could see but one way out of his suffering, and that but a little way off.

His wife was anxious to try something new, and when informed of our having recently erected a tent 20 x 112 feet, located on the edge of a grove, she was anxious to give him a trial there. He was accordingly transferred early the next morning, and it was in his chair, under an evergreen tree, that he first felt that he was safely landed on terra firma, as he relates in his experience as you will see further on. He at once commenced to improve physically, so that by August 15th he was quite strong. He now answered our questions, when it could be done by the nod of the head. About this time he was attacked with dysentery, which was prevailing in and about the asylum. He was at once given an appropriate diet and was doing very well, when the regular nurse was called away during the dinner hour. A supply took the regular food to his bed and insisted on his taking it, but he protested and said the doctor had ordered so and so. It was then that he found he could talk. He commenced to answer questions by yes and no, and from this on to tell his feelings and how he had been since visited. He continued to talk more and more every day, until he was taken on parol by his brother, with whom he remained until he was discharged in October, 1885.

Since his recovery he has given us a very interesting sketch of his asylum experience, from which we have compiled the following:

He entered the Hancock and Garfield political campaign of 1880, very much debilitated in physical strength, but stimulated with the hope of success for Gen. Hancock, he put forth his best efforts both through the columns of his paper and also upon the stump, and when the end of the campaign came and Hancock was defeated, he felt at once that there was no more work for him in this world, that he had no future; and that the sooner it was ended with him the better for all concerned. He first sought relief in an electropathic institute, but he only remained a short time, as his condition was rapidly growing worse. He returned home, where he remained while arrangements were being made for his removal to an insane asylum.

While staying at his home he fancied his whole worldly effects were advertised by the sheriff for sale, and on his return from a ride one day, he fancied he saw the notice posted upon his house announcing the fact; his family had become beggars and he saw his youngest boy, a lad of six years, ragged and bare footed in the snow begging for a penny with which to buy bread. He thought he must be taken to an asylum or place of confinement and there eke out his existence, and the sooner it was over the better he would be satisfied. He next fancied he saw his whole family slaughtered, and then surely he felt life had no place for him.

During his trip to an insane asylum he thought some half-animal and half-human beings had a sort of balloon arrangement, and that they had so arranged the house that they could generate gas in the cellar and conduct it through the roof, and thus inflate their machine; and that one morning these animals hitched on to the top of his house and started with them all for the asylum, with a stream of burning gas following them from the rear of the building. He seemed the only one cognizant

of the fact that they were being taken. They had only gone a short distance when his brother concluded to open the door and walk-out, and in so doing, he fell to the earth, a great distance, and was dashed in pieces. As they passed along the river he saw a stream of burning gas flowing down, all of which had been caused by the machine by which he was being conveyed.

The first night in the asylum he was aroused by the cry of "fire," and the roll of the steam engines on the pavement and a bright light shone in his window, which was interpreted by him to mean that the stream of burning gas he had caused to flow down the river had reached the city and all was to be destroyed by fire. All noises had a language and conveyed some idea to him. The tick of the clock called out the stations as they rolled along, all the while above them, except when they came down to make a stop.

The asylum seemed to be a place of human slaughter, brought about in every conceivable manner. The servants rattled the dishes to attract people to the table when no meal was to be served. These were slaughtered by dead-falls, burning, drowning and by every form of horrible machinery. The building was in the air some distance above the earth, so that no human being could reach them.

One of his brothers and his family physician were put in a machine like an old fashioned apple-paring machine, and with a knife cut up in small bits, after which they were put in trunks and sent home. This was to be his fate as soon as they got hold of him, so he kept clear of the dining table and stayed in his room and thus escaped.

All over the building he could hear the screams of children that were being eaten by these half-animal and half-human beings. It seemed to him at this time that some unknown lady was visiting him in his room and claiming to be his wife (which was true) whom he was sure was dead. He would occasionally go out to walk

with the expectation of stepping off the building into mid-air to fall through space to the earth, but when the door was opened, he always found they had been lowered to the earth.

Dray carts and 'buses cursed him in their peculiar language and threatened him with immediate death.

After a time he was confined in Solomon's temple or some other historic edifice. He fancied he made a trip in his balloon all over the world, in which he visited all the countries taught him in early days. This was a free ride on a through train with no stops save one. He fancied they were frozen up in the Artic region once, but finally went off in a terrible flood. He made a trip to the other world and a very pleasant trip, except the drawback that he could not remain. In this he saw all he retained of his early religious teachings: the golden streets, the great white throne, celestial harps, paradise birds, etc, etc. He thought his stomach was simply a barrel, and that his food remained there 'till it decayed and then passed off, hence he refused food; so he required feeding nearly four months with a stomach tube. He well remembered how ghastly he looked when he saw himself in a large mirror. One day as they took him out to the bath-room, after the bath, he was dressed in his usual clothing, and for the first time, for nearly four months, he took a little solid food.

At one time he fancied his clothing was not his and he would take them off and go to bed. The attendants remonstrated with him, and finally threatened him with a cold bath if he would not keep them on, this they carried into effect one cold winter day. After this he was always willing to take any clothing offered and no questions asked.

For about four years he refused to talk, fearing something awful would happen him if he did, and in addition to that he thought everybody knew, as well as he, what he was thinking about and that there was no necessity of his talking; he was annoyed to have people ask him

questions, for he thought they did it simply to annoy him or catch him in a quibble. His first impression at Binghamton was that he was confined in some prison (all the while in the air) for some wrong fancied or otherwise, and that the authorities were only holding him for execution. When taken to a bath he fancied he was to be drowned, but some circumstance always intervened to save him and he would find himself back to his seat where he was taken from. He was repeatedly taken to be hanged and he could hear the mob around him crying for blood, and he has seen the gibbet erected for his execution, but from this he seemed to escape by some unknown means and again he would find himself at his old place behind what seemed to him the prison bars. He does not have as minute a recollection of what transpired around him at Binghamton as he does while at the first asylum.

He has a very distinct recollection of his severe illness during the long winter of 1884. He had a pleasant room by himself which looked out upon the city, and it was from this room he first beheld the electric lights, which had come into use while he had been confined. The lights to his mind were some supernatural engine of destruction that he could not interpret.

The first and only idea he ever had of self-destruction came to him while he lay in his room suffering. One bright night he lay thinking of himself and his condition, and in the full belief that he had no family or friends in this world, he felt it would be as well for him to be out of it. He planned how he could fasten one end of his sheet to a lock that fastened the inside guards of his window and the other end around his neck, and then put an end to all further trouble. About this time the night watch came along and gave him some medicine, and attracted his attention in another direction and thus it passed off. To show how the delusion that everybody knew what he was thinking about gained strength in his mind, he referred to

one circumstance which is only one among hundreds. The next morning after this contemplated self-destruction his attendant came into his room, and the first thing he did was to remove the lock from the guard and open it, leading him to believe that he knew what he had been thinking about and that he did this to prevent a recurrence.

Early in the summer he was removed from the main asylum building to the tents, at which time he could scarcely walk and would not talk. He says when he arrived at the tent very early one morning a new idea came into his mind. Instead of thinking himself sailing about in the air in a sort of a prison house, he actually found himself on terra firma again, the sun shining, the birds singing, the winds blowing and evergreen surrounding him. This gave him new thoughts and together "with kind care placed him on the road to complete recovery."

After a time he was attacked with dysentery, and when upon his cot sick, he first attempted to speak. He tells of a strange attendant bringing him for dinner two slices of bread thickly buttered, a dish of oatmeal and sugar and a bowl of egg and milk; he says he knew it would not do for him to eat it and that the attendant intended to kill him, hence he cast about in his mind to see how he could make it known to him. No way opened except to try to talk, so he made the attempt and in a small squeaky voice, which frightened him and nearly frightened the attendant, he told him he could not eat that, and that he wanted what the doctor ordered. His friends were informed of the change and came to visit him, and when he saw and conversed with them he gave up the delusion that they were dead, and he felt a desire to have their visit repeated.

The delusion in regard to the knowledge of his thoughts and being a prisoner, etc, did not leave him until after he went to visit his brother, and as he found he could be out among people without detriment to

them or himself he felt so relieved, that in a day or two sleep came "nights to his eyelids," and these all departed at once more suddenly than any other during his recovery.

All this time he was gaining physically, so that at the regular meeting we were able to present a man fully restored.

[NOTE.—Since the preceding article was written, a note from the author announces the sudden death of the subject of the paper, Mr. H. —, of apoplexia. Mr. H. — continued in good mental health up to the sudden attack which terminated his life.—ED.]

An Outline Brief in the Management of Melancholia.

*DESIGNED CHIEFLY FOR THE HOME PHYSICIAN.—WRITTEN
BY PERSONAL REQUEST.**

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THE Court physician's reply to the King's interrogatory as to the power of the doctor "to minister to a mind diseased" and "raze out the written troubles of the brain,"—that "therein the patient must minister to himself," is not the response which medical art to-day gives to the significant question, "What shall be done for melancholia?" Though many physicians still answer the question in the same manner as Macbeth's physician did, not recognizing, as the stern old King implies in his speech, that the trouble is written in the brain, registered, as we now say, in neurotic change of the ganglion cells of the grey cortex; that "the memory of a rooted sorrow" may be recorded in a morbidly impressed self-consciousness, in which antecedent, concomitant or subsequent molecular cell changes have occurred in the perceptive or ideational centers of the grey matter of the brain; not realizing the ganglionic depression which accompanies, precedes and follows the melancholic seizure which not only "stuffs the bosom" and "weighs upon the heart," as the impetuous war frenzied Macbeth discerned, but congests the liver, disturbs the kidneys, depresses the activity of the bowels, lowers the cutaneous functions, diminishes gastric and duodenal digestion, and takes away appetite for food and inclination to

* This paper to page 230 was read Dec. 26th, 1885, before the St. Louis Medical Society, but has not been hitherto published. The remaining pages have since been added.

recuperative sleep. Appreciating far less clearly than Hippocrates did, the physical substratum of this form of mental disease, for did not the father of physic locate melancholia in atrabilis, and did not his friend Democritus "cut up and anatomized an animal with the view of locating this disease where this physician had placed it, in the liver?

Neither Hippocrates nor his philosophic friend Democritus had yet learned how, through the sympathetic and associate vasomotor systems and their indirect but intimate connection with the intra-cranial nerves, they mutually influenced each other in disease. In their day it had not been demonstrated that the gastric filaments of the left pneumogastric join with those of the hepatic plexus of the sympathetic to enter the transverse fissure of the liver, but the old clinician of antiquity (whose accuracy of observation, if we consider his comparatively circumscribed opportunities of seeing the minutest mechanism and movements of the organism which the later discovered and utilized lens has revealed, has never been excelled), recognized clinical facts when he saw them, and like the old masters in art, who painted and chiseled out the human form before Vesalius, made human anatomy an exact science, has given us some unequalled reproductions of nature; notably among them his masterly descriptions of hysteria, which have not been materially improved upon in the more modernly designated hysteroneuroses and the recognized hepatic torpidity associated so often, and, almost invariably, with melancholia agitata. Though not the cause of it, as the old clinician of Cos supposed, yet from its long observed and often intimate association with a sluggish and deranged liver, the disease still bears the name which he has handed down to us, *Μελας-Χολή*—black-bile, melancholia.

The hepatic secretion was black from long retention and torpid action of the liver and bowels, and was a prominent clinical feature in his day, as it is in ours, in the most marked cases, misleading many physicians, who, recognizing the somatic relations of melancholia and searching for an organic cause, locate it in the viscera alone, which they

find affected, and not in their controlling mechanism, where it properly belongs, namely, in the cerebro-spinal and allied ganglionic nervous systems.

The *Klopf-versuch* of Goltz and other intestinal concussions and irritations which the physiologists have shown to inhibit cardiac movement and interfere with normal cerebation, had not been made in the days of Hippocrates, but nature had made her experiments before him, through morbid actions, and he was not blind that he could not, in part, at least, see and interpret them.

Others, finding the digestion deranged, will seek to remedy the head through correcting the state of the stomach, and wisely, if they do not stop at this treatment. Others, finding constipation, will, like Celsus of old, reckon it to be the cause, and by evacuating the bowels, do great good through relief to the portal circulation, the hæmorrhoidal vessels and stimulation of the abdominal, ganglionic and general sympathetic system.

Burton in his anatomy of melancholy tells us how a young merchant, going to Nordelung Fair in Germany, for ten days' space never went to stool, who became grievously melancholy, thinking he was robbed. Cnelius, a physician, found his costiveness alone to be the cause, and, thereupon, gave him a clyster, by which he was speedily recovered ; " and of a melancholy lawyer to whom Trincavelius administered physic, and of another patient " who was bound and, therefore, melancholy affected," mistaking compacted bowels for the cause instead of the atonic state of the involuntary nervous system, upon which intestinal, gastric and hepatic torpidity largely depends. Constipation is a frequently associated condition of melancholia, but it has never been the sole cause of it.

The ancients sought its cause in menstrual and hæmorrhoidal suppression, and by regulating them sometimes cured it, just as is done to-day in some cases.

Some more modern physicians, finding the urine surcharged with lithates or albumen, will locate the disease in the kidneys ; and glycosuria, which is but a symptom, I

have known to have been treated as a diabetes, with damaging low diet.

The dry skin will attract the special attention of some, the dull and yellow conjunctiva that of others, and they all deserve attention, just as the sluggish bowels, the fitful and inadequate sleep, and the restlessness and apprehension or the silent and stolid demeanor, but if we single out a few of these special physical symptoms (for they are seldom all present in a single case), and treat them as the disease or its cause, we make the too common mistake, which has been made in the management of melancholia. The real morbid condition underlies these physical symptomatic evidences.

With this erroneous view of what it is considered are the causes and conditions of melancholia, some physicians, discerning no appreciable physical derangement of well-known viscera or of the so-called bodily functions and recognizing no mental disease in the disordered and painfully perverted psychical sensations, because they are unskilled by clinical experience in psychic symptomatology, and seeing in the unfortunate patient a capacity to converse rationally and reason logically upon everything disconnected from their lowness of spirits, will counsel in the spirit of Macbeth's physician, throwing the responsibility of recovery upon the unfortunate and mentally burdened patient, who, rendered desperate under the organic depression which weights his mind like an incubus, will likely seek relief (if not wisely circumvented), in desperate resources. Afraid of death and still weary of his life while he fears, "yet in a contrary humor," as Galen wrote, "makes way with himself."

The time will come, sooner or later, in the progress of this malady of the affective life, when the impaired psychical inhibitory powers will become paralyzed, and the intellect and volition can not longer check the fatal impulses which spring out of the morbid feeling; like the resistless convulsive impulse, contraction or paralysis, of a morbidly involved motor center of the spinal cord or brain, and a

record of self-destruction ends the patient's mental misery and refutes the incautious and mistaken diagnosis.

Or, possibly, the patient may pass, if proper treatment be neglected, through such mistaken medical views or through injudicious counsel or unwise action of the victim's friends from his "sadness into a fast," and starve himself to death, a very common form of death in melancholic maladies, or as Polonius further describes :

"Thence to a watch ;
Thence into a weakness ;
Thence into a lightness ;
Thence into madness,"

a not uncommon gradation and result. Melancholia is, if unarrested, a most frequent precursor of mania, as the records of all asylums for the insane attest, and as would be much more fully shown, but for the daily occurring suicides which constantly cut off melancholics and thus prevent this disease of the nervous system from maturing into mania. Insanity is the great outlying morbid sea into which, if unarrested, many more lightly regarded nervous maladies than melancholia flow, either in the affected individual or in his descendants, and habitual or oft recurring lowness of spirits, without profoundly adequate moral cause, is a malady which ought not to be lightly esteemed, either by physician or patient, just as the morbid timidity and fears of incipient neurasthenia are worthy of most considerate attention.

We have reached a period in the progress of medicine when psychical symptomatology ought to be no less regarded than disorders of the more grossly appreciated physical functions. Psychiatry has become a medical science with a subtle symptomatology based on molecular perversions. It is in nerve element, especially in that which enters into the composition of the brain, that the involution of energy, as Gowers observes, reaches the highest known degree. The precise number of the nerve elements of the whole brain is not known, but their great number confounds us. The cortex alone contains probably

more than eight hundred millions of cells, but notwithstanding its complexity, the compactness of its structural plan makes it comparatively simple. Its great number of structural elements is small in variety of form or size, and the connecting strands differ but little from each other. Take for example the countless thousands of cells of the six or seven layers of gray matter, varying in size from one three-hundredths to one-thirteen-thousandths of an inch in diameter. A dozen varieties in shape and size would embrace them all, yet they vary in size and shape in the different layers, and somewhat in different convolutions, presenting the distinctive features in the superficial, small and large pyramidal, granule and fusiform layers, while their connecting fibers pass from one to another and downward into the subjacent white substance, and in every direction making intimate connections with the basal ganglia. The medullary matter is a mass of fibers and fibrillæ passing in every direction, in the same hemisphere to establish functional association. We may trace the white fibers also through the corpus callosum to the opposite hemisphere, and they converge from radius to center in the internal capsule and optic thalamus, in the crus cerebri, tractus opticus, geniculate and quadrigeminate bodies.

This aggregate of neural activities has its physiological centers of diverse function like the individuals of the body politic, having also a community of action and interest. Cell groups have their functional activities in association, not only with their neighbor centers, but with centers in different hemispheres of the brain and with mechanisms of energy beyond the hemispherical or basal ganglia, in distant parts of the cerebro spinal axis and the connected ganglionic system of the sympathetic. Man's neural mechanism consists of many distinct but closely associated parts. The scalpel, staining process and the lense, of the neural necroscopist, have revealed this much of the most complex of organisms subserving the most complex and wondrous purposes of discernible, but incompre-

hensible function. But neither the microscope nor other power of science can penetrate beyond these relatively coarse outlines of living neural organism. Cautious scientists have conjectured that each nerve cell contains countless atoms. The diverse psychical responses (beyond our capacity to number them) to peripheral cerebral impression of a physiological character, as we see in the varying mental characteristics of man and nations; the aberrant movements of a cerebrum deranged by the varieties of mania as we see them especially displayed in the asylums for the insane; the selective affinities of drugs and poisons for particular parts of the spinal cord or brain, as we see manifested in specific and limited disturbances of sensation, perception, ideation, motility, emotion and will; the law of physiological selection for trophic purposes, as well as the reverse elective affinities of disease for certain cells and tissues, and leaving others untouched, together with the law of secondary degeneration, following the course of normal functional conduction from the affected ganglion, and confining itself to continuity of tissue, reveals a world of knowledge respecting the diversified nature of the nerve elements, showing us differences more subtle than microscope or chemistry have yet discovered, and revealing at the same time both a new realm of knowledge and a wider domain of mystery for future science to study.

With all of this knowledge, demonstrable and reasonable, of the most complex functional activity inseparably allied to organism in the minutest components of the centrum ovale and superimposed gray matter of the cerebral convolutions, who will deny to psychiatry a substratum pathology, or who shall dare to say that, because no sensible disease appreciable to the unassisted eye is discernible in the abdominal or thoracic viscera or elsewhere in the body, that, therefore, there is no disease demanding the physician's attention in melancholia, or that without necroscopic proof, when ante-mortem organic disease is undiscovered by ordinary methods of physical explanation, the conclusion of disease is fallacious? The psychical

symptomatology is itself confirmation sure of morbid lesion in the brain of the melancholiac.

Yet it has not been uncommon, in my experience, to be called in to take charge of cases of melancholia which have for many months, and sometimes even for years, been so regarded by the family physician, or treated as forms of hysteria. A most dangerous error of diagnosis, both to the welfare of the patient and to the final reputation of the medical adviser among discerning people.

(I would like, if it were in place here, to protest against the lightness, with which hysteria is too often regarded by the profession and the little gravity attached to its symptomatology, for while, as compared with the profound neuropathic conditions which it often simulates, it is a slight neurosis, it is a grave psychosis and its victims should receive our most skillful attention, not so much during the paroxysm as during the interim of their recurrence, with a view to reforming the neuropathic instability of organism, which makes the morbid paroxysmal recurrences possible.)

The *rationale* of this cursory survey is that the melancholiac is a subject of study and treatment from *tarsi* to *caput*. That while the head is chiefly at fault, various parts of the organism may be at the same time conjointly deranged, but not one part exclusively, but the whole nervous system, demanding the physician's most skillful attention.

Mind in its normal manifestation is a symptom of cerebral health. Its abnormal displays are symptomatic of disease.

Post-mortems of the brain in simple melancholia have been few because melancholiacs who have died by self-violence outside of asylums, have either not been strongly suspected of insanity or have had those about them who would either not allow or who did not desire autopsies. The rigid surveillance of asylums for the insane usually prevents those who are sent to them from self-destruction, and the melancholiac either recovers as

a rule or passes downward into the graver degenerative cerebral change, characteristic of chronic mania or dementia.

The prognosis in melancholia is favorable, and depends upon the duration of the disease and the degree of morbid degeneration established. In the early stage, mainly of cerebral enervation or neuratrophic and vascular depression, the chances are very good. Patients recover after many years in asylums—after six, seven and even ten years, occasionally, as I have seen them do—so that melancholia can not be said to be like general paralysis, absolutely incurable, and the chief danger out of asylums is from self-destruction and unskillful care and treatment. Asylum treatment is not indispensable to melancholias if they are so circumstanced as to be able to receive proper management, which comprehends speedy, skilled medical and personal care, constant watchfulness, timely rest, recreation, exercise, sleep and adequate nourishment. Under these circumstances more patients can be successfully treated at home, especially if the exciting causes of their mental depression do not persist there. About one-half of all cases judiciously managed recover. Some cases should be immediately removed to an asylum. Some should only be taken away from home for treatment. Recovery in melancholia is ordinarily gradual, extending over a period of from three to twelve months. Sudden appearances of recovery should be suspected. The patient should be closely watched till time confirms the genuineness of the improvement. A melancholiac may have an hour of cheerfulness before bed time and kill himself during the night or in the morning, or he may feign cheerfulness while planning or accomplishing a tragedy. A half an hour of lucid cheerfulness may disarm suspicion while the victim of our unwise confidence ends his misery in self-destruction. Unremitting vigilance is the price of the patient's safety.

Long persisting, fixed delusions, of a limited and definite character, more endanger the patient's chances of recovery than changeable ones. They point to chronic, morbid

organic activity; and duration of symptom in mental disease is on the same footing with reference to eradicability as long continued morbid expression in general.

But long standing cases do sometimes recover, especially after sudden and profound impressions on the organism—moral or physical. An intercurrent disease, a violent accident, the death of a dear friend, a sudden and overwhelming reverse of fortune, have sometimes by some kind of revulsion, arrested the morbid processes in the innermost recesses of the brain, and established the beginning of a final, permanent restoration. A powerfully diverting moral shock sometimes arrests and permanently changes the abnormal and painful self-introversion, causing the mind to look upon its environments in a new light, while new and healthier molecular activities take the place of those arrested by the shock.

A great therapeutic principle is here suggested, viz.: that of mental diversion, which is habitually taken advantage of in the management of these cases by those who best understand their treatment.

The patient is not to be sympathized with or soothed and consoled by repeated reference to his depression of spirits or the real or imaginary cause, but rather diverted by cheerful personal demeanor and surroundings, lively speech and incentives to cheerful mental activity.

Progress towards recovery of the melancholiac will be accelerated or retarded according to the success we achieve in removing its moral and physical causes. If the exciting moral cause persists and remains forever present with the patient, unless that cause be slight, as compared with a remediable physical cause, there is slight hope of cure.

Whatever may be the cause, we must remove it if we can. If we can not, we must remove the patient from its influence. If we can not do this, we must fit the patient, so far as we can, to sustain the shock and resist its effects.

Time assuages a great grief and dulls the edge of sorrow. A storm of adverse fortune will sweep by and leave

the patient finally unharmed, if we take care of the organism during the violence of the gale. The darkest storm clouds that gather over the mental horizon are sooner or later lifted, if we can save the mind from wreck during the height of the storm's violence. The vessel may be driven violently before the wind, but good seamanship by neglecting no means of keeping her seaworthy and in safe water, may enable her to ride out the most violent storm.

The seaworthy human craft, storm-tossed in the angry sea of life's bitterest experiences, finds the best mariner and helmsman in the thoroughly experienced physician. The emunctories of the body in melancholia, like the pumps of a storm-imperilled ship, are often out of order when they are most needed. They need to be put into healthy action.

Sails should be reefed till the force of the storm's violence is spent. In melancholia this is accomplished through sleep—sweet oblivious sleep—that “knits up the ravelled sleeve of care,” rests and strengthens the strained brain and recuperates the wasting and overwrought energies of the organism, in whatever direction they may have been expended. A calm may be reached far out in a different sea or a haven of rest found in a foreign land. Here the simile ceases.

The strictly medical management of melancholia, after the removal of all appreciable gross functional or organic conditions, consists in

- 1st. Tranquilization of psychical agitation.
- 2d. Restoration of the lost cerebral tonicity.
- 3d. The substitution of new, diverting and agreeable psychical impressions.
- 4th. The removal of the moral causes of the melancholia or the removal of the patient from their influence.
- 5th. The removal of all physical causes so far as discernible and practicable.

The first and third indications are temporary symptomatic expedients, but they are essential aids to the fulfillment of the second requirement.

To accomplish the first, nightly doses of alcohol, chloralhydrate, urethan or opium to induce sleep, and ether lotions to the head, suggest themselves. And occasionally ether or chloroform inhalations. Cephalic galvanizations before bed time may supplant the necessity for hypnotics and will always be found an invaluable adjuvant treatment.

To fulfill the second indication everything that builds up—generous diet, malt extracts, liquors and wines (sparingly) with pepsin, ingluvin and pancreatine. The compound hyphosphites, muriate of ammonia, iron, arsenic, strychnia, phosphorous, valerian, camphor and zinc. The patient will refuse and resist food, but it must be urged upon him in concentrated liquid form, if he will not take solid, and its digestion and assimilation must be assured by chemical aids—but solid foods are best.

The ozone formed by the static machine quickens the blood changes, makes a demand for iron and accelerates the formation of hemoglobin, of which pure air and iron are the pabula.

For this purpose static electricity and mild static electro-massage give valuable aid, especially where the patient is fleshy and can not be induced to walk out or ride on horseback. Violent and oft-repeated massage, mechanical or manual, and oft repeated Turkish baths, are positively hurtful to these patients by the excessive weariness they occasion if not compensated by adequate restorative nutrition.

The interrupted current and the static shock fix and divert the attention of the patient, and have in my hands sometimes awakened a new interest in the medical aspects of this cure. The daily surcharging of the patient with the positive current I think does good, and the study of the marvellous phenomena of electricity sometimes supplants for a time the self-introspection of the patient pending our reconstructive measures, and the silent electric saturation has also power to reawaken dormant nutritive and formative force energies in the depressed organism of melancholia.

The free use of aromatic flowers and plants and attractive and novel paintings, statuary and articles of *virtu*, birds and enlivening music and humorous illustrated literature, plays, panoramas and pantomimes are valuable auxiliaries. The exhilarant influence of the aromatic flowers and plants has been attributed to their capacity to generate ozone.

The third indication is promoted by the judicious and temporary use of the exhilarant stimulants, opium, codia, cannabis indica, caffenin, thein, quinine, camphor, the valerianates of ammonia, iron, etc., Hoffman's anodyne, chloroform, the etherials the alcoholics and coca extract and cocaine. I deem it advisable to use all of these stimulants sparingly, and the latter especially with extreme caution.

No mental impression that will agreeably divert the mind should be ignored in melancholia.

A common practice with me is to combine a half grain of Merck's codia, an equal quantity of Merck's aloin, two grains of pyrophosphate or valerianate of iron, one of quinine and a half grain of extract of nux vomica in capsule form, and to give at ten and three o'clock daily, continuing this for a few days, then withdrawing the codia and substituting a grain of extract cannabis indica.

After continuing this for a few days, I have of late added half a grain of cocaine in lieu of the codia and cannabis indica, or the three C's, codia, cannabis indica, and camphor. But I am not so well satisfied with the cocaine as with the opium in the combination, for the reason that cocaine is much more transitory in its effect than either good cannabis indica or opium salts.

A mixture of fresh coca leaves, tea leaves, ground coffee and chocolate, made into a plug or cake like tobacco, is an excellent exhilarant if the patient can be induced to chew it regularly, as lately recommended by Dr. William F. Waugh of Philadelphia, for the alcohol habit. Squibbs' fluid extract of camellia, in one to two drachm doses, twice to thrice daily, gives tonicity to the

heart and sometimes exhilarates the spirits. For the same purposes tea may be given freely.

I have also given strong, black coffee infusion and fluid extract of coca, sometimes with a little brandy, with benefit. Sometimes I have used fluid extract of coca, laudanum, compound spirits of sulphuric ether and brandy combined and with decided benefit, especially, when the patient has been habituated to liquor drinking.

A nightly dose of bromide of ammonium in a tablespoonful of elixir valerianate of ammonia or two to four of camphor water is admissible, but in general, the bromides (especially the bromide of potassium) are contra indicated in melancholia, for it is a disease of neural atonicity.

But there can be no uniform and unvarying method of managing melancholia because of the varying symptomatic manifestations and underlying and concomitant pathological conditions. It may be associated and generally is so allied, with that fatal neuropathic heritage—the insane diathesis—which often makes such a morbid organic impress upon the inherent constitution of nerve element, that only family extinction can eradicate it, or it may be associated and fortunately often is with a milder degree of degeneracy of nerve element, which persistently induced physiological conditions and healthy environment may regenerate, especially before organic evolution is finished and descending retrogression is begun, in the individual.

Our prognosis and success in treatment will depend somewhat upon our ability to discern these and other underlying causes, and to properly estimate the precise part they play in final causation.

In this relation all constitutional vices are to be considered—the organic nerve cell and neuroglia changes consecutive to chronic alcoholism, the vascular and other structural degenerations from this cause, the adneurial depositions of constitutional syphilis, the organic modification of scrofula, the anæmia of phthisis and the de-

pressing influence and vasomotor changes of chronic malarial poisoning.

I have seen a melancholia come and go with the development and cure of a rectal fistula and pass away shortly after the removal of a stone from the bladder and restoration follow a recovered prostatitis and arrested spermatorrhœa. Not, however, without associate constitutional and tranquilizing treatment. It was one of the aphorisms of Hippocrates, that if the evacuation of dropsy should happen to a melancholy man his misery would be ended, and I have seen great amelioration and ultimate recovery follow the cure of hæmorrhoids.

Alcoholic depression gives to melancholia a phase of self-reproaching disgust, despair and dread of life's responsibilities with tendency to sudden suicide.

Dyspeptic conditions give to melancholia a hypochondriacal phase, while venereal excesses give to the gloomy foreboding sexual apprehension, morbid sexual antipathies and impulses to homicide. I have known a person six months after matrimony to pass into melancholia and confess with tears to transient morbid impulses to destroy his wife. Business men, overworked and overstrained by the anxiety incident to the accumulation of a good bank account, have become depressed and imagined themselves coming to want and abject poverty.

In some instances rest and recuperative treatment have restored at once their health and the wealth they never lost.

Religious over-excitations and lustful excesses with their consequent exhaustion of the higher nerve centers, strangely turn the mind to melancholia and murder. Aberrations of the genesic sense, as past and present history, political, religious and personal, abundantly proves, are often satiated in blood, while genital mutilations and tumors are followed by hyperæmia, hypochondriasis and erotomania

But the many phases of melancholia which fall

under the observation of an established alienist-physician, who has past middle life in active practice, are too numerous to be presented in a mere outline of treatment like the present, which aims only at shedding a little working light on the management of its ordinary and earlier features.

The earlier stage of depression of spirits—the *schwer-muth* of our German cousins—before its monomaniacal form has become prominent, when the latter step comes and the patient refuses medicine and food, believing it to be poisoned, or before he seeks self-destruction to avoid the impending wrath of an imaginarily offended God, or panic stricken and frenzied, seeks escape from imaginary harm in flight or would gouge out an imaginarily offending eye, cut off an offending member or inflict other self-mutilation; these cases shed more lustre on the family physician if he sends them to a safe asylum for the insane, than if he attempts to treat them at home.

That speechless and motionless form, in which the patient must be washed and dressed and fed and otherwise, appears as if entirely demented—which, however, is not the case, as the patient in this condition may at any moment display considerable mental capacity and cunning in an attempt at suicide, is not a safe patient to be managed even for a few days by the general practitioner, whose ordinary clinical ignorance of the special and distinctive features of mental disease may lead him, in such a case, into grave and false security and fatal errors of omission, if not of actual commission, in treatment. This is the *melancholie avec stupeur* of the French, the *Schwer-muth mit stumpfsin* of the Germans.

Melancholia is a disease which cannot be overcome by storm, but rather is it to be subdued by gradual approaches.

It can neither be successfully managed by cocaine nor controlled by excessive libations of liquor, though I have known a physician to rashly advise a melancholiac to go and get on a spree.

In the use of either alcohol, ether, opium, cannabis indica or cocaine for the treatment of this disease, we should be careful that we do not fasten upon the unfortunate patient the relentless thralldom of a fatal drug habit; that we do not lead him out of the possibly transient gloom of his depressing malady into the perpetual darkness and chains of a neuro-psychic slavery, but little, if any better, than the freedom of organic dissolution, which is death.

The extract and wine of coca, especially the old *Vin Mariana*, are safe and more preferable than cocaine.

If cocaine is given in melancholia, neither ether nor chloroform should soon follow them, as heart and lung paralysis have been known to result from their administration in succession. Cocaine in poisonous doses, like chloroform and ether, especially attacks the medulla oblongata and upper part of the spinal cord, and paralyzes both the respiratory and vasomotor centres of the cord and brain.

If the patient refuses medicines and has to be medicated hypodermically, then thein and aloin, the former in one or two grain doses, three times a day, and the latter in tenth to one-fourth grain doses once a day, or every other day, may serve an excellent purpose in tranquilizing and toning the patient's nervous system and in keeping the bowels open. Merck's hyoscamin, 1-30 to 1-20 gr., may be given hypodermically at night to induce sleep, or we may give Merck's codiæ or the valerianate or bi-meconati of morphia in the same way, or any tonic and sedative alkaloid, such as the citrate of caffeine, which may substitute the thein.

If we medicate by the month we must be assured that our patient swallows what medicine we direct to be given. With all my experience with these patients in a large institution for the insane, I have now a patient, under family care, who succeeded in concealing between her bed slats and the bedrail down under the wire mattress, though she was constantly attended day and night, forty-six capsules, out of about ninety, directed for her,

in the course of a month's treatment. They were capsules of Fairchild's pancreatic extract and pepsin, directed three times a day, and a few capsules of aloin, codia and iron. She would hold the capsule in her mouth, swallowing the liquid given with it, till, in an unobserved moment, she would remove it in her handkerchief and conceal it about the bed as indicated. Liquid medicines are best for such patients under such circumstances.

These patients had better be over-nourished than underfed. And to this end, I give them all abundantly of Merck's, Darmstadt, dry malt extract or Hoff's liquid malt extract and cream several times a day, unless there has always been a repugnance to milk which cannot be overcome.

I have given to them, when it could not be easily given in any other form, the *ferrous mallate* in teaspoonful doses between meals.

This outline view and treatment from one who has had large experience in managing this form of mental disease, both in and out of an asylum, it is hoped may serve to make the family physician somewhat more at home than he usually is, in the early conduct of these cases. They are at best, hard cases to successfully manage, especially at home. And the more the physician sees of them, the more will he appreciate the value of that clinical experience which comes from asylum observation, for every case of melancholia, along with its general features, has its special phases. He will realize too, in general, that the asylum is the best place for the majority of these cases, and if he cannot secure for such patients very prompt, favorable surroundings and experienced medical attention without an asylum, he will, if he be conscientious, soon advise his removal to a distant hospital, and by distant hospital I mean one as far removed as practicable from all the influences that tend to keep active the patient's mental depression.

The worst mistake that can be made in these cases, is to send them to an asylum within too convenient reach

of the patient's family or intimate friends and relatives, where the victim may, every few days, get a fresh load of grief in the painful familiar faces which go to kindly, but fatally, stab him with their sympathy and keep fresh his mental wounds.

The management of melancholia out of an asylum is no easy matter, and when it is aggravated, should only be undertaken as a rule for any length of time at the patient's home, by physicians who have had some asylum experience. There are too many things to consider about it, concerning the patient's welfare, which would only occur to a physician of somewhat extensive psychiatric experience. For instance, when a patient refuses food or medicine, it is generally from the promptings of some silent delusion as to its being impure or poisoned or sinful to take it. In melancholia the feelings are delusive, and special delusions may be easily excited by injudicious conduct on the part of physician or nurse, or friend, that may become fixed. It is just as important that some one skilled in psychiatry, by clinical study of insanity, should see these cases, as it is essential in the majority of instances, to consult an experienced surgeon concerning most tumors. The common impression that even an apparently mild case of melancholia is a simple matter is a very mistaken notion.

Melancholia is at the bottom and beginning of a large proportion of the cases of insanity that ultimately are sent to abide, often after they have passed the best period for cure, in asylums for the insane, unless they terminate their own cases by yielding to and consummating the common suicidal impulse of this disease.

A common and great error in the treatment of this disease is sending the patient off on a long journey without medical attendance, or with a medical man who has had no experience in psychiatry. Probably more melancholiacs, sent away in this way, for the benefit of their health, die violent deaths by their own hands than ever recover or return home.

Silent melancholia is suspicious, and we should be suspicious of it. While we treat the patient, whether in the hospital for the insane or out of it, with a cheerful, confident and hopeful air, we should, without betraying our distrust, constantly watch the patient.

These cases must, from their insidious and deceptive character and the consequent difficulty of persuading the friends of their real gravity, be treated for some time by the family physician, hence this outline brief as to their management. It is fortunate that, in so many communities there are physicians now who have had more or less of the kind of experience that best qualifies for advice in these cases, and fortunate for the patient and the family physician if such physicians are timely consulted.

Observations in English Asylums.

By E. B. NIMS, M. D.

WHAT I shall say in this paper may seem trite to those who are more familiar with the English asylums than I am. I hope that I shall be able to say something new, for the impressions of different people are never exactly alike. It was my privilege to visit twenty asylums for the insane in England and Scotland the past season. These visits varied from one to three days in each. Three of this number were private asylums, five were hospitals for the middle and upper classes, seven were county or pauper asylums, and one a criminal asylum; the others were mixed in character. About the first thing that I observed was the substantial character of the buildings, the solidity of their structure. They were plain, without ornament, as if made for use. The masses of brick and mortar are enormous. The thick walls, as seen in Bethlehem, the numerous stone and tile floors, the almost universal stone staircases and the ceilings often made of masonry, give one an idea of strength and endurance. After one has visited a considerable number of asylums, he will observe that the style of building has changed from former times. Those who have seen the Bethlehem Hospital, which stands in the heart of London and which was erected in 1815, will remember the long corridors, with rooms on one or both sides, also how each story is occupied, as in most American asylums. The Hanwell Asylum is similar in construction; likewise the Scotch asylums, as Morningside at Edinburgh, Gartnavel at Glasgow, and Crichton at Dumfries. In the modern asylums I observed a different order of construction, as at Berrywood at Northampton; Wadsley at Sheffield, and Whittingham at Preston. The

day-rooms are in the lower story, the lodging-rooms, in the upper. Several of the English physicians declaimed against the American fashion of building hospitals, especially of adhering to one set plan, as in placing sections in echelon and in preserving the regularity and symmetry of the plan at the expense of comfort and convenience. Those who have visited the Whittingham Asylum will remember how the administrative building occupies the centre of the plan. From the rear end of this building long covered corridors run to right and left, connecting several buildings on either side. Each of these buildings accommodates about one hundred patients. The lodging-rooms are in the upper stories and the day-rooms in the lower story; one-half the width of the connecting corridors is used as a passage way. The other half is divided into rooms for excited patients, the windows often being in the roof. These rooms are very serviceable for isolation of the noisy and troublesome cases. One is impressed with the large dormitories, which often contain seventy-five or more beds. The absence of the water-closet is noticeable. In the annex to this asylum, which is a very well-arranged building, accommodating seven hundred patients, the dry-earth closet is used entirely.

The county asylum at Prestwich, near Manchester, is a model asylum. The main building, which is old, has been improved by the addition of bay-windows and glass covered piazzas; the old halls have been broken up into a pleasant irregularity, which is a peculiarity specially liked by the superintendent. A noticeable feature is a large room, which is constructed with a glass covered roof, and which is used as an associate dining- and amusement-room. The new annex which was built for eight hundred and forty patients is made up of several buildings connected by covered corridors. Its solid walls, the interior finish of hard pine, the great amount of ornamentation in the day-rooms and the general cheerful appearance, unite to make it a charming home for the

pauper insane. The dry-earth commode is used there. The building was erected at a cost of about one hundred and twenty thousand pounds. The prevalence of associate sleeping-rooms in the hospitals for the middle and upper classes is noticeable. Dr. Baker has them in his new annex to the York Retreat, which he has recently erected at a cost of \$60,000 dollars and which accommodates thirty patients. This building is provided with the heavy plate-glass windows in place of the iron guards. This arrangement is quite common in England. The new Holloway Sanatorium, which was opened with imposing ceremonies last June, and which was erected at a cost of a million and a half dollars and accommodates two hundred patients, presents the modern ideas of hospital construction. The day or sitting-rooms are in the lower story, the lodging-rooms in the upper stories.

The system of heating and ventilation in the English asylums is less complicated than in America. I was informed that the temperature was usually from 55 to 60 degrees F. The open soft coal fire was seen in all hospitals. Occasionally there were systems of hot water pipes, usually covered with wood or masonry; the heat escaped by radiation through these coverings. Ventilation was equally simple. I did not see or hear of any artificial or forced ventilation. They depend on the open fires and outside windows. It occurred to me that some of New England winter mornings, with the mercury at 25° below zero, would test the heaters effectually, and summer heat at 95° in the shade would do the same for the ventilation. The impression was left in my mind that England has the advantage over us in point of climate, and that the equable temperature must be less irritating to disordered nerves, than the sudden and extreme changes here.¹ The medical staff seemed small to me in many of the institutions.

At Hanwell, Dr. Rayner and one assistant attended to the wants of seven hundred patients. At Berrywood, Dr. Green and one assistant had six hundred patients.

In other asylums the ratio was about the same. Many of the physicians claimed that they did not give much medicine.

It is apparent, to an observer, that the arrangements for the care of patients are very complete and efficient, and that a vast amount of labor is expended for their benefit, viz: in the infirmaries with the special kitchens attached to them; the observation dormitories, where suicidal cases are collected, and are under constant supervision at night, an attendant sitting there on duty; the large number of rooms which were lighted at night, for inspection; and the special provisions for the very large numbers of epileptics, etc. I was much interested in Dr. Rayner's account of his experience in feeding patients by force. He assured me that he had large numbers of cases, in which forcible feeding is usually resorted to, yet he had not been obliged to practise it for many years. By what magic art he was able to do this, I did not fully learn. The secret that he did impart was that he had attendants who were specially trained for that work, and who, by judicious treatment, perseverance and tact, were able to care for such cases without resort to the tube and its like. His experience is interesting as showing what can be done.

I was informed that the ration of beer, which was formerly so universal, had been discontinued in many asylums. In some it is given only to workers and the delicate and feeble. The physicians who expressed an opinion in regard to it, appeared to have lost faith in its special value. To one who has never seen the congregate dining-rooms in the large pauper asylums, the first impression is peculiar. I saw them in use in three asylums. The patients marched in order to their meals; sometimes they remained standing while grace was said or sung. The food was served by the attendants; the patients were orderly and quiet. In one dining-room there were over four hundred patients of both sexes. It seemed to me that the system has many advantages.

There is economy of time and food in serving the meal; the waste is lessened, the wants of the patients are better attended to, any omission or neglect is much less likely to occur, and it is a relief to the halls to have the patients leave them for half an hour. The moral effect on the patients is good; they are under a sense of restraint which increases the power of self-control, and helps in what may be called the education of the insane. The idea that they are treated in a wholesale manner, that they lose their individuality, is true to a certain extent, but no more true in this than in most of the operations of a gigantic asylum.

The amount of entertainment that is furnished at the English asylums is very noticeable; at many of them it is the custom to have field days for athletic sports, games and picnics. In the cricket season, which lasts most of the year, matches are played. Several of the county asylums have large, well-organized bands of music, and out-door concerts are frequent. The element of climate comes in here again as affording a greater opportunity for out-door entertainment than in America. In-door exercises are not neglected. I saw a dance at Whittingham where six hundred patients were present. It was a well-ordered and conducted exercise. Many of the asylums have fine provisions for dramatic entertainments. The airing courts, which are to be seen everywhere, are made attractive and pleasant, and are much used.

The arrangements for employing patients are usually very complete. A large amount of work is done in the extensive and elaborate grounds. The gardens at York, the hedge-rows at Wadsley and Whittingham, the beautiful lawns at Roehampton and Ticehurst, require a great amount of care. At Berrywood, in Northampton, which is a shoe-making town, large quantities of shoes are made for sale. At other asylums there were shops for tailors, upholsterers, carpenters, etc., all in use. I saw about a hundred women at work in each of several laundries; the kitchens, sewing-rooms, the manufacture of stockings

and other industries gave employment to many. A large amount of machinery, with all the modern improvements is used.

The question of mechanical restraint cannot be passed by. In the asylums herein mentioned there were about 15,000 patients. I saw only one person that was wearing any form of mechanical restraint, and that one was a lady seventy years of age; she had mittens on to prevent destruction of clothing. The question was always asked, "Have you any patients in restraint?" The answer was in every other case, "No." The next inquiry was, "Do you ever use it?" The universal reply was, "We should, if the case warranted." I did not find any physician who said that he would not use it under any circumstances; nearly every one said that they would use it for surgical reasons.

These asylums use the padded-room considerably; at Hanwell there were thirty of them. It was quite common to see an attendant on guard at the door of a padded-room; the floor being covered with mattresses, and the occupant of the room, a furious maniac, dressed in strong clothing. The most marked success of the non-restraint system was at the Broadmoor Criminal Asylum. There were five hundred and fifty criminal lunatics in confinement; about one-half of them are murderers and not one patient in restraint. It was not surprising to learn that both the superintendent, and assistant were partially disabled by injuries which they had received. There were many desperate cases; most dangerous in their inclinations and delusions. Some of them were in seclusion in rooms which were as strongly built as a prison. A large number of women patients were kept in bed, because, as the superintendent said, they could be controlled better in that way, otherwise he would be obliged to seclude or restrain them. It seemed to me that if non-restraint was practicable and possible there, that it was in any asylum. It is not easy to give a satisfactory reason why restraint is so little resorted to in

these asylums. I believe that, aside from considerations of humanity, the lunacy commissioners and public opinion are largely responsible; restraint has come into such disrepute, that physicians avoid using it for the sake of reputation and position. There is an *esprit du corps*, and a generous rivalry among physicians, which makes the practice very rare.

Broadmoor furnishes a good example of what can be done for the criminal insane. The patients are of that class who have committed overt acts under the influence of insanity. The convicts who become insane are kept in the prisons. The buildings are substantial and constructed with special reference to safety; they are very plainly furnished and the strictest economy is observed everywhere. The patients appear to be comfortable, yet there is an air of hopelessness about them, an apparent recognition of the fact that they are permanently shut out from the world; and any one who visits them must carry away the feeling that after all but little can be done for them, for their inclinations and habits make release almost impossible. There is the compensation that other asylums are freed from the demoralizing tendency of their presence, in the suggestion of criminal acts and their irritable lawless dispositions. The importance of an early recognition of insanity is here forcibly shown, for thereby many a horrible deed would be averted. The cottage system as carried out at Cheadle is interesting to observe: there are about twenty cottages connected with the asylum, some of them at the seaside, some out in the country; the majority were in the vicinity. The excellent judgment and remarkable energy of the superintendent, Mr. Mould, has probably contributed much to the success of the system. In one cottage you will see a party of imbecile children enjoying themselves in the open air with their attendants, another is devoted to the inebriate class, and yet another is made a cheerful home for two or three gentlemen of leisure, whose mental

obliquity interferes with their residence in their own homes. It seemed to be an admirable arrangement for a party of convalescents to spend a few weeks at the seaside, under the charge of a medical man, to complete and ensure the recovery which had begun at the hospital. The whole arrangement seemed to enable the superintendent to dispose his patients in such places as were best suited to them, the proviso always being that they could afford the luxuries that they had and enjoyed.

The open-door system is well illustrated in its practical workings at the Royal Crichton Asylum, at Dumfries. The superintendent, Dr. Rutherford, is evidently a firm believer in the system and is sincere in his efforts to carry it into effect. The institution consists of two buildings, one for the middle and upper classes and one for the pauper class. The first building is so arranged that the halls or corridors open at one end into the central building. The entrance door is opened at ten o'clock in the morning, after the housework on the halls is done, and kept open until eight in the evening. The sitting-rooms are at the end of the corridor farthest from the entrance. As we passed through them we usually found the patients collected in these day-rooms and an attendant sitting with them. The patients were like those in other asylums, restless and sometimes excitable and wanting to get away, with the exception of those who were out on parole. I was unable to perceive that the patients there enjoyed any more liberty than they did in other asylums. Doubtless the effects of open doors upon some would be to lessen the desire to escape. But the patient who, in an asylum with locked doors, expends his energies in watching for an open door, would here watch for the moment when the attendant's back was turned. The feelings of some patients rebel against locked doors, and it is a satisfaction to them to know that the doors are open a part of the time. So much is gained at least. It was in this asylum that the custom of having attendants in uniform was most strongly condemned, for the

reason that it made a marked distinction between attendants and patients, and because there was the appearance of being under guard, which, to a sensitive imagination and diseased mind, is often an unpleasant suggestion, while there is really no compensating advantage. This asylum has established the custom of having shooting parties for the patients, on a rented preserve several miles from the asylum. It may seem peculiar to entrust guns in the hands of insane men. The facts in the case, as Dr. Rutherford assured me, are that there were only about half a dozen men who carried guns. They were mostly of the inebriate class or convalescents. The remainder of the party were beaters or spectators. For genuine enthusiasm and interest in the welfare of the patients and for earnest attempts to benefit the patients, the Crichton Asylum is, perhaps, unexcelled. I saw here what I had never seen elsewhere, a house situated about thirty rods from the main asylum and occupied by a dozen female patients, without any attendant, taking care of themselves, preparing their own food, etc.; entirely alone during the day, at night a servant slept in the house.

The asylums in Scotland are evidently less favored pecuniarily than in England. The prices for patients, especially paupers, being very small. Now, the question arises, what are the differences between English and American asylums? It would be supposed from some accounts that we hear, that the patients in English asylums are docile and trustworthy, so that restraint is not needed, that the type of insanity is entirely different, that there is not the same violence in the onset and exacerbations of mental diseases. I am sure that I saw the same furious maniacal cases that I have seen here. The paretic had the same ideas and delusions, the hysterical cases were strikingly familiar, the suicidal cases were as anxious to end their lives, there was no lack of desperate and dangerous ones; yet, taken as a whole, an American would say that there is difference in the

general appearance of these asylums as compared with ours, especially in the county asylums. Now, circumstances alter cases. A pauper in England is a different being from a pauper in America. The line between classes is so firmly drawn in England, that it is very hard for a pauper to rise above that condition. The county asylums are filled up largely with the quiet harmless cases. For instance, the asylum at Prestwich had fourteen hundred and eighteen admissions in the year 1884, largely from poor houses. I was impressed with a remark made by the superintendent of the Whittingham Asylum. He pointed out several patients saying, "those are among my noisiest cases, and they have all been in American asylums. They are always asserting their rights, and are discontented and troublesome." They seemed to have had a breath of the air of freedom and were not willing or able to sit down and accept the situation, without protest.

The administration of the English asylums is characterized by the same thoroughness which is seen in all English work. There is the same regard for what is useful and substantial, rather than for appearance; and one cannot fail to be impressed with the large amount of care and constant supervision which is given to the patients in these asylums.

I can truly say that I saw many things that I should willingly copy, and some that I should not. I was received with cordiality and courtesy in every hospital that I visited, and always found the physicians ready to give any information that I desired. They seemed to appreciate American asylums, thoroughly—and several, who had visited America, spoke highly of American hospitality and the courteous reception they met with here.

Report of a Case of the Opium Habit in an Idiot Boy.*

By J. C. CARSON, M. D., Syracuse, N. Y.

ON the 23d of April, 1884, application was received at the New York Asylum for Idiots for a boy, B. M——m, aged eight years, twin-born, and a subject of the opium habit since the day of his birth.

The father of this boy was stated to be a native of New York, and was about thirty years of age when the twins were born. He is said to have been a healthy, temperate man, and had never been subject to any form of mental, nervous, or scrofulous disease. The application stated that the father's mother's sister married an own uncle, and had three idiotic and deformed children, with seven toes and seven fingers, all of whom were unhealthy.

The mother was a native of Ohio, and about thirty-six years of age at the birth of the twins. She had had four children previous to their birth, all of whom were still-born. She had always been healthy, except being troubled with neuralgia, for the relief of which affection she acquired the opium habit at twenty-eight years of age. Her family history, as obtained, gave no hereditary predisposition to any form of disease. It is stated that the *accoucheur* in attendance at the birth of the twins administered ergot to the mother, and about four hours after their birth she was seized with convulsions, which continued for two days following, when her death occurred. The physician, in making the application, ascribes the convulsions to the combined action of the opium she herself had taken and the ergot administered by the attending *accoucheur*. This opinion, however, I think, is not warranted by therapeutical authority. Aside from the

*Read at the Fall Meeting of Association of Medical Superintendents of Institutions for the Idiotic and Feeble-Minded, held at Lincoln, Ill.

effect of the ergot administered, the labor is said to have been a natural one, not requiring the use of instruments.

The applicant at birth weighed four pounds, and the twin brother two pounds. They were both very quiet, and lay peacefully resting until about six hours old, when they each almost simultaneously began worrying, crying, and at last began screaming, and kept it up without any indications of abatement for hours afterward. The mother being in convulsions at this time, it was thought her condition might be aggravated by the noise of the screaming infants, and it was suggested, prompted by the known habits of the mother (all other measures tried having ingloriously failed), to give them some opium.

The grandmother says she then took a bit of opium resin about the size of a grain of wheat, dissolved it in a little water, and gave each a teaspoonful. Its effect was almost magical, as in a few minutes they ceased their tossing and screaming, and slept quietly for six to eight hours afterwards. Then they again began to cry, or to "screech and jerk," as the grandmother says, and "kept it up" until the opium was again administered, and so on from time to time and the days and days that followed. Mrs. Winslow's, other soothing syrups, whisky, and various drugs, were tried in vain as substitutes for the opium, but opium alone seem to possess the charm to allay their "screeching and jerking," which followed each time about eight hours after its administration. It, too, was soon found to be losing its control, and the next step toward peace in the family was to increase the quantity, which was done accordingly as future occasions demanded.

At the end of the first month the smaller twin died in convulsions.

When five years of age the applicant had a severe attack of typhoid pneumonia, from which he eventually recovered, but during which he had convulsions. Subsequently, however, to his recovery from it he would have convulsive attacks, lasting for a few moments, several times a day, and about once in four to six months a

severe epileptic seizure. During this sickness the opium was materially increased, and at the age of seven he was taking ten grains of solid opium every twenty-four hours, or in doses, three times a day, of three and one-third grains each.

The grandmother relates that during these years she made repeated and desperate efforts to discontinue the drug to him, but each time, after about forty-eight hours' trial and endurance, the condition of the child would become so pitiful her courage would fail her, and it was again and again resumed. Soon after his seventh birthday, she says, she determined that the drug would eventually kill the child, and finally resolved it might as well die from the want of it as from its effects. She then commenced to diminish the quantity gradually from time to time, and by May, 1884, had succeeded in reducing it to one grain at bedtime. This amount she continued to give until his admission to the asylum in September following, or a year ago. Since that time no opium has been given to him. The matron tells me that he was restless and uneasy and did not sleep much for a few nights immediately following his admission, but otherwise she did not observe any ill effects from its complete withdrawal.

The grandmother says as soon as she began to reduce the quantity of opium the epileptic attacks became less and less frequent, and have now entirely disappeared, none having occurred since a year ago last May, the time of the opium reduction to one grain at bedtime.

The following additional facts concerning him were elicited from the physician's application made in April, 1884. General health good. He began to walk at two years and eight months. At fourteen months it was noticed that he could not articulate. Before this he appeared very stupid, but this was attributed to the opium habit. Has a fairly developed forehead; vertex flat, with a depression over posterior surface of parietal

bones; head wide. Has a slight halt in left leg, but growing less. Has had partial paralysis of left arm, also diminishing. Is of average size of his age, active and vigorous, and not nervous except when out from under the influence of opium.

Appetite irregular, scarcely ever eats breakfast; likes sweet things, and particular as to what he eats. Sight and hearing good; is fond of music; notices bright colors, recognizes form, observes and distinguishes pictures; understands language and commands; will do errands, like bringing in wood and water. Commenced to speak at seven years of age. Says "pitty" for pretty, and attempts to call animals by names of his own, corresponding to their habits, as "pee-pec" for birds. Is cleanly in his habits; undresses himself, but cannot button his clothes. Feeds himself with a knife, and sleeps well after taking a grain of opium. Likes to tear things. Is of fairly good temper and obedient, but cannot be trusted. Wants or tries to talk all the time, and amuses himself by running about the house riding a stick which he calls "pony."

The head measurements, as taken myself recently, are as follows: Circumference, twenty inches; transverse circumference from the external auditory foramina, thirteen and a half inches; from the intercilium to the occiput, eleven and a half inches. The vertex looks flattened, with a depression or valley along the line of the sagittal suture, or between the parietal bones. The palate a little narrow and vaulted; teeth a little irregular.

This case was admitted previous to my arrival at the asylum last fall, and my attention was not directed to his remarkable history until a few weeks ago.

I have with some care inquired into and elaborated his case thus fully, not for the reason that the features of his idiocy present any striking or unusual peculiarities or characteristics, but because I believed it a rare and exceptional case of the opium habit in one so young, and really acquired from a time, at least only commencing

with the day of his birth. My memory does not recall any similar or parallel case on record, and during the brief period and opportunity I have had to look up the authorities on the subject, I have been unable to find or learn of a single case approaching it in character reported.

Whether these twin boys, born of this mother, an opium-eater for seven or eight years previous, and in the habit of consuming, as her mother supposes, from ten to twenty grains of solid opium daily, and probably more during the natural anxieties of her pregnancy, really directly inherited this habit from her *in utero*, is one of the questions that arises from the history just narrated. Were the crying, the struggles, and the restlessness of these babes as described, that commenced about six hours after their appearance into the world, due to the want of opium from an inherited opium habit, and obtained *in utero* through the medium of the mother's blood? The time that elapsed before the uneasiness and screaming commenced; the quiet and repose that followed the opium administration; its resumption again after a period of about eight hours, and continuance until the second administration; a tranquil condition for another eight hours, and a subsequent corresponding history, that repeated itself over and over in this manner in these cases, would incline to the opinion of the possibility of the direct transmission to them of the habit through the mother, and a consequent acquisition of the habit at birth. Another point which makes these cases extraordinary, and adds weight to the possibility of such a condition, is the fact that here were two babes, *twins*, each beginning to cry and fret about six hours after their birth, and, from the history given, pertinaciously, frantically, and rebelliously persisting again and again until appeased by the opium draughts, and both having been subjected to precisely the same pre-natal influences.

Dr. F. M. Hamlin, who maintains a retreat for the treatment of the opium habit at Auburn, N. Y., and who is as

familiar with the subject as any physician within my acquaintance, writes me, in response to a letter briefly describing these cases as follows:

"I regret there is not more reliable information collected on this matter of the opium habit and all of its effects. The natural desire for secrecy, and the concealment of everything possible to conceal, make the collection of facts very difficult. Then there is another factor to be considered in getting many facts in regard to such manifestations of heredity as in the case you relate. It is this: so few children are born of opium-eating mothers, and if one is born and the mother nurses the child, it is probable her milk would be so affected by the drug the child would in that way get enough for its desires. That a child born of an opium *habitué* should have the habit entailed upon it, I think altogether probable and reasonable to expect. But cases illustrative of it are necessarily few." . . .

"A woman in this city, addicted to morphine for nine or ten years, gave birth to a child last winter which lived a few months. She nursed it for some time, but she kept dosing it with morphine aside from what she afforded it with her milk. After a time her milk ceased, and then she gave it morphine constantly because of a diarrhœa. It finally died of dysentery. I have no doubt, had the mother died, or not been able to nurse her child, it would have required the use of the drug the same as in the case of the children you mention."

Other important questions are suggested in the consideration of this boy's case; as, for instance, was he a congenital idiot, or was his idiocy due entirely to the opium habit? The irregular shape of the head, the narrow and vaulted palate, and the history of his first two years of life, would seem to give the affirmative answer to the former question.

Still another point arises in his case. Was the opium habit the cause of his epileptic paroxysms? As the epilepsy did not appear or manifest itself until he was five-

years of age, and while he was suffering from an attack of typhoid pneumonia, it is probable that a coexisting febrile state superinduced the epileptic condition which subsequently followed for the next few years, and it is a fair inference that it was afterwards maintained by the use of opium, from the fact of its gradual and final disappearance after the opium was lessened and discontinued.

As regards a cause for his idiocy, believing it congenital, and knowing pretty conclusively that intemperance from the use of alcoholic drinks on the part of one or both parents is one of the fruitful causes of idiocy in their offspring, it is but reasonable to suppose that a habit which is accompanied with even greater moral degradation and slavery, might also be safely attributed as a probable cause in this case.

The opium habit has become so prevalent in civilized countries within late years, that children are probably born every day, the world over, of mothers addicted to it. Its influence over and enslavement of the individual is so powerful, that I have deemed this case of sufficient importance to call it to your notice, hoping it might not only interest you as it has me, but also with a view of attracting attention to others of the profession, who, when having opportunities of observing similar conditions, will place them on record.

In submitting the report of this case, I am fully aware that it results mainly in speculation; but, from its unusual anomalous and extraordinary features, it seemed to me interesting. If it has not been so to you, gentlemen, I ask pardon, and thank you for your attention.

Alopecia the Result of Lesion of Trophic Nerve Center--Relieved by the use of Electricity.

A CASE RECORD.

Reported by G. W. OVERALL, M. D., Memphis, Tenn.

MISS C., aged 14, sent to me for treatment by Dr. Julius Wise, of St. Louis, March, 1885. The salient points in the case are as follows: In 1878 she had some form of fever (I have been unable to ascertain the type). On recovering, her hair all over her body came out, including the eye-brows and lashes. Up to the time I first saw her it had been out seven years, though she had been under constant treatment during the entire time without the least benefit. Her skin was dry, scaly and atrophied, except her scalp, which was glossy. She was in perfect health, except she suffered frequently with cephalalgia. She was physically well developed. No scrofula nor syphilitic history in family. I thought at first that it was malnutrition of the skin due to some obscure cause, so I began giving arsenic, cod liver oil and using various local applications. This was continued for two months without any relief.

I finally concluded that it was due to lesion of the "trophic nerve center." I then discontinued the medicines, which by this time had her eyes very much swollen and inflamed, and began applying the electric currents—giving general faradization and central galvanization. The Faradic current was also applied locally to the scalp by means of a sponge or brush electrode. At the end of the first month the only change observed was in the condition of the skin, which appeared more healthy, also relief of the headaches. At the end of the second month, with the

treatment continued daily in the same way, fine fur could be seen in spots on the right side of the head. After the third month the fur, or fine hair, could be seen all over the right side with a few scattered hairs longer than others. Up to this time there was no sign of any on the left. It seemed to follow the median line. At the end of the fourth month's treatment fine hair began to appear on the left side, while that on the right was from a quarter to half an inch long.

The treatment was continued for ten months with a complete restoration of the hair on the head and all over the body. The skin is perfectly natural in appearance. I am unable to account for the hair being restored on one side before the other, when both received the same treatment.

The Relation of Phthisis to Insanity.*

By B. R. BENNER, M. D., Lowell, Mass.

WITHIN a comparatively recent period, only, have certain constitutional vices, aside from insanity or other neuroses, received the attention they deserve as a remote or immediate cause of mental disease.

When this subject has been fully analyzed we shall, doubtless, have increased evidence that insanity is not necessarily its own immediate ancestor or direct descendant; but, among others, that alcoholism, the opium habit, cancer, syphilis and especially phthisis, bear a more or less intimate relationship to the insane condition.

Of about six hundred patients admitted to the N. H. Asylum for the Insane for the five years preceding the present, thirty-four, or nearly six per cent., according to the records, showed some connection with a phthisical taint, as existing either in the individuals themselves or their antecedents.

But there is good ground to believe that this represents but a portion of the actual number, such are the obstacles in the way of getting exhaustive or even casual information.

Many of the persons who accompany patients to hospitals, and who have to be depended upon for what family history that is available, are dull or heedless, and able to throw little light upon the question of heredity. In other cases, though there may be sufficient knowledge, there is in members of the family a pardonable reluctance to reveal its weaknesses, which they now see to be significant, or even to acknowledge them to themselves. Of the thirty-four individuals, whose records I was

* Read before the N. E. Psychological Society, December 8th, 1885.

able to trace with more or less minuteness, there were seventeen men and seventeen women. Of these, fourteen men and thirteen women had a phthisical parentage, and one man and two women had phthisical ancestry in direct line other than parents. Eight men and two women, most of them with phthisical parentage, had *insane* grandparents, uncles or aunts. This illustrates the not unfamiliar fact that insanity and phthisis frequently interchange from one generation to another.

It is to be observed, also, that eight patients had phthisical brothers or sisters, or both; showing how the constitutional fault may manifest itself in both forms in the same generation.

Not only this, but insanity and phthisis may be substituted for each other in the same individual for an indefinite period; and two of the cases merit special attention as demonstrations of this truth.

One of them, a man with a bad heredity of cancer, phthisis and insanity, had hip joint disease in childhood, which left him permanently disabled.

In young manhood he had phthisis pulmonalis which progressed into the later stages, when, opportunely he went to California, and was apparently cured.

After a time he had several attacks of insanity, marked by delusions of fear and suspicion, which finally settled into chronic disease, and he is now in a state of partial dementia, still maintaining in a milder way his characteristic ideas.

The other, now a middle aged woman, who had a phthisical father, was attacked when young by pulmonary consumption, with hemoptysis, from which she appeared to recover. In the course of time she became a nervous invalid, and is now a confirmed hypochondriac.

There is now no appearance of lung disease in either case; but should this occur, a conspicuous modification of the brain symptoms may be almost confidently expected.

Another point worthy of mention, though perhaps unimportant in view of the small number of cases under

observation, is the great preponderance of the maternal over the paternal agency in transmitting the phthisical disposition to the off-spring; twenty patients having had phthisical mothers, while only six had fathers affected in like manner.

I observe, further, that four of the insane women have developed and died of phthisis, and two other cases are now afflicted with that disease. Of the already fatal cases, two had insane fathers, one a phthisical father, and one an insane brother.* Of the two who still linger, one had an intemperate father and an insane mother, and was originally defective; the other had an insane father and an insane paternal uncle and aunt.

In reference to the fatal phthisical cases, the following outline of their history may be profitable: One on admission had been insane six months, and was in a state of moderate excitement. This, however, increased till her delusions took complete possession of her mind. She imagined she was to be made the subject of cruel tortures, and this threw her into a perfect agony of apprehension, the reality of which was fully attested by the cold perspiration which stood upon her imploring face as she begged for some mitigation of her fate. She had hallucinations of hearing; she refused food which she thought was poisoned, and which a part of the time had to be given instrumentally; and was actively suicidal, preferring death by her own hand to that living death suggested by her deluded fears. In about four month from her commitment she was found to have phthisis which, thereafter, continued active and pronounced to the close. These developments had little effect upon the severity of her mental symptoms. To the last her delusions gave her no peace, and maintained their commanding force.

Another woman was apparently demented on admis-

*These remarks are based on information hastily and informally taken at time of admission. Unquestionably the woman mentioned as having an insane brother had insane or phthisical ancestry, though not so recorded. It would deepen the interest of this subject greatly were it practicable to obtain a complete ancestral history in each and all the cases.

sion, having been several years insane; with hallucinations of hearing, but no signs of lung trouble. For two or three years she alternated mentally between a state of torpid inaction and irregular spells of brightening up. At about the fourth year of her hospital life it began to be evident that some deep seated change was in progress, which proved to be tubercular disease of the lungs, somewhat advanced. During this time the periods of mental inertia became more settled and those of brightness more fleeting and infrequent, excepting, however, that during the last two months of her life her mind was perfectly clear.

The third case had been insane four months when committed. She was mildly excited, suspicious and unsocial, with hallucinations of hearing. She continued thus for about ten months, when pulmonary symptoms set in, without any modification of the mental disturbance, except that due to general weakness as the lung disease went on.

The next and last of these cases was quite remarkable from the acuteness of the mental disorder. This patient had been sick of consumption for some time, when, all unexpectedly, the lung symptoms disappeared, and she became violently insane; being noisy, restless, destructive and incoherent. This held on about two months, and again the pulmonary trouble returned, leaving her mind tranquil and serene. She died of the original disease in about two months from the subsidence of her excitement.

I have dwelt upon these cases somewhat in detail for the purpose of noting some of the mental states which are to be observed in insanity associated with phthisis, thus: we may have passive dementia; active suicidal mania, with delusions of fear; mild excitement, with suspicion; and intense maniacal activity of the ordinary type.

In two of these patients there were but slight changes as to their mental condition throughout; but in the other two the contrasts were extreme and worthy of attention.

In both the latter the mental change represented an improvement, but from widely different conditions; one of them experiencing complete relief from her high excitement, the other rallying many times, temporarily, from her demented stupor, with a prolonged interval of sanity at the last.

If these phenomena had thus been witnessed for the first time, they would have excited curious comment; as it is, it seems pertinent to make some inquiry as to their explanation.

The idea is put forward by Dr. Clouston, to whom I am indebted for other suggestions in this paper, that the essential conditions of the disease are anæmia and malnutrition, and that the temporary mental relief in insane phthisical patients is the result of febrile activity consequent upon extension of the inflammatory process in the lungs, which, it is claimed, impels an increased supply of blood to the brain. This view, which impresses one as quite reasonable at first sight, appears rather less so on further study. If this be true, we might wonder why alcohol or quinine would not accomplish the same thing. And, besides, in two of the patients, although there were exacerbations of the lung symptoms, there was no corresponding respite for the mind. However, this solution was intended to apply more especially to chronic or demented cases, and not to the more active form.

In the latter case there appears to be on the part of the disease an abrupt change of base, in which the brain suffers the embarrassment previously endured by the lungs; for in the excited patient I have described, the pulmonary symptoms appeared to be entirely subordinate to the mental state. That this can be is indicated by the history of the two patients related at the outset, in whom, when the lungs were restored, however imperfectly, to their natural office, the brain was correspondingly distressed. It should be said that in those cases where there has been serious pulmonary disease, there must be a partial loss of substance, with a consequent decrease of

lung power, yet in many instances this is not suggested by any outward indication. There was, also, great motor restlessness, a noisy and riotous volubility, and, yet, she gave no respiratory sign. What can be the pathological distinction between two cases of the character I have sketched? Is the difference one of degree or of kind? What induces a return of reason in the one case and its complete overthrow in the other? Is it one and the same cause, namely: the raised temperature and quickened circulation from inflammation of lung substance? It would seem hardly credible, and yet, for hidden reasons, perhaps possible in peculiarly sensitive constitutions. But other queries suggest themselves, particularly in regard to cases of the more positive cast.

May it not be that the active disease principle is translated, for a time, from the lungs to the brain or its coverings; or, that the blood is the blameworthy agent, impaired in quality as it must be in advanced disease, from lack of free aeration and from contact with inflammatory products; or, may not these products themselves, finding their way into the venous currents, set up secondary changes in the brain; or, is the peripheral irritation in the diseased lungs capable of being transformed into vasomotor disturbance in the nervous centers, manifesting itself in perverted brain function?

Laying aside these speculations, which are not brought forward as candidates for adoption, it is to be noted that phthisis, associated with insanity, is always a discouraging complication, and is, I believe, more common in cases where it has previously existed in the ancestry. It has been fatal in over eleven per cent. of the thirty-four cases, two more are now sufferers from the disease, and, in all probability, others will follow a similar course.

This has nothing to do with the question as to the relative number of the insane who die of phthisis, as compared with other members of the community. I am only considering the matter in its hereditary aspect as

related to insanity. Doubtless the improved hygienic conditions of our hospitals for the insane tend to make phthisis among their patients less and less frequent.

Although the phthisical inheritance is ominous, it does not follow that disease in the respondent will conform to a regular type, or that such cases are without hope. Four of the patients we are now studying, one woman and three men, all having a phthisical parentage, recovered. However, they were not all of that chronic variety which is so often related to hereditary phthisis; but one man is a recurrent case, subject to acute attacks in which he is noisy and mischievous, lasting from six to twelve months, and succeeded by an intermission of several years.

The mental distraction in another man supplemented the measles, and after a period of confusion with mild excitement, he recovered completely in four months.

The other two cases appeared to be of the more common phthisical form, that is, a mental state combining suspicion, unsociability, etc., with a debilitated bodily condition; although in the woman the mental symptoms were aggravated, if not directly induced, by domestic worryment from a real cause. She recovered fairly in a year and a half, the remaining man in six months. None of these showed any lung symptoms, though this may not be an unlikely event of the future.

And it may be said in this connection that all but one of the fatal phthisical cases, before mentioned, were recorded as having suffered previous attacks of insanity; but how complete were the intermissions there is no means of knowing. At any rate, we have seen that their mental recovery was not permanent, and that pulmonary disease supervened in the course of time.

Four men, all of whom had phthisical mothers, improved sufficiently to admit of their discharge, but they have manifestly lapsed in mental efficiency; and, it is found that whatever the original conditions, they tended in the majority of instances toward the common goal of

dementia. A portion of these will probably die of phthisis, or other wasting disease, after a longer or shorter period of mental inanition; the lung disease in many cases giving but faint warning of its approach, of its arrival, or of its final lodgment in the system.

It seems almost superfluous to call attention to matters of such common observation, and, yet, they have an important bearing on prognosis, besides conveying a lesson of vigilance in detecting disease in ambush.

Of the series under consideration, nine men and ten women already belong to the demented class, showing various degrees of deterioration. Seven of the men had phthisical mothers, one a phthisical grandfather and an insane grandmother on the same side, and one had paternal uncles who were phthisical and insane, respectively, the father dying of cancer. Of the women, eight had phthisical fathers or mothers; one having a phthisical mother and an insane father, and one a father who was both insane and phthisical. Of deaths from other causes than phthisis, one woman died of structural disease of brain, one of acute senile insanity and one man died of marasmus. Of two men not otherwise included, one suffers from probable organic brain disease, and the other is in the earlier stages of suspicious and excitable mania. All these had direct phthisical heredity.

It is thus made plain for the purposes of this paper, at least, that ancestral phthisis constitutes an imperfection which inclines to assert itself in those who come after, but that it does not invariably reappear in its own, but frequently in some kindred form; the disease from conditions not yet understood, being cast in a new mold in its descent from parent to child. This change is wont to assume various shapes, being modified, no doubt, by individual environment, by a new strain of blood coming through one branch of the parental stock, and by numberless constitutional states, unknown and unknowable. Epilepsy, chorea, hysteria and many other, depraved neurological conditions, as well as tubercular disease of

other tissues than the lungs, are all frequently traceable to antecedent phthisis.

But were this matter pursued still further into the ranks of partial responsibility, enfeebled moral tone, or vicious criminality itself, we should without doubt find that phthisis, as well as other constitutional failings, has made its way into a thousand channels where it can only be recognized by its impoverishing results. In other cases, and no doubt the greater number, the original disease is repeated in the descendants. But, on the other hand, through that conservative principle of nature which tends to maintain a true standard, and thus preserve humanity from the depths, it is not uncommon for the offspring of such parentage to escape the consequences altogether.

Taking into view, therefore, all the cases in which phthisis has had a supposed influence, it is evident, notwithstanding its marked relationship to the subject in general, that it is only in exceptional instances in which that influence leads to insanity proper.

But I would call attention to another consideration, which is, that when the disease manifests itself through the operations of mind, there is developed, in a large proportion of cases, a characteristic group of symptoms, though difficult to express in a comprehensive definition.

These are, chiefly, and it is remarkable to note their prevalence in patients of the class I speak of, delusions of suspicion and conspiracy, a vague fear of bodily harm, coupled with weak reasoning powers and hallucinations of sight or sound; a combination which reacts upon its composing parts and tends to perpetuate itself. This applies, perhaps, more strictly to cases of the chronic type and to the earlier stages, but is not peculiar to either class; and over twenty patients, out of the thirty-four, presented the conditions described, set in a background of individual variations, excepting the hallucinations of sound, of which there were eleven sufferers in all.

Some thought their relatives had turned against them ; others believed that attempts were being made to poison them ; that people were trying to injure them ; that enemies were conspiring to arrest them ; that they were being blamed for things of which they were guiltless ; and two very favorite ideas were that people were " talking about them," and that some one was " after them." Still others were tormented by an indefinable dread of something, they knew not what, that was to befall them suddenly ; and one thought that people were trying to kill her, and that they made faces at her in the street ; another that she saw her dread relatives about the house. The more active cases were entirely dominated by their delusions, expressing them without reserve. But patients of the chronic type, by far the larger number, though they held to their false opinions constantly and tenaciously, they were disposed to be wary and secretive ; yet, their tell-tale faces laid bare their innermost thoughts. Many had what all will recognize as the significant expression—as though they were fully aware of the deep schemes on foot, but did not intend to be imposed upon.

This led in some cases to the exhibition of those more repulsive qualities, which are frequently remarked in such patients : great irritability, moodiness, refusal to speak when addressed by certain persons whom they suspected or disliked, extreme selfishness and unsociability, and a singular and unreasoning ingratitude, which resented the kindest attentions as premeditated insults, or greeted them with spiteful insinuations.

It must, also, be said that a few of the cases were the embodiment of amiability, and while entertaining delusions of the same stripe, they were lacking in individuality and self-assertion. And, taking them altogether, the majority were originally wanting in the more solid elements of character. They were manifestly, but in varying degrees, below the standard. There was a shallow-mindedness, an immaturity, a want of concentration and

cohesive power which made them the more willing subjects of disease. Such are some of the mental peculiarities of insanity akin to phthisis.

There are also some physical marks, associated with these conditions, which should not be passed over. These cases do not belong to the robust, wholesome or favorable order. Their vitality is low, their physiological supports are weak, and, as a rule, they bear the stamp of chronicity and incurability. They have little of that tonic resistive force which helps to ward off or overcome disease. Consequently, they respond tardily to treatment, especially as relates to building up through the digestive and assimilative powers.

Insanity with phthisical connections has been spoken of as representing a more or less distinct phase of disease; and this is intended to include, not only those cases in which phthisis is co-existent with insanity, but those in any degree allied to the phthisical diathesis through heredity, the implied conditions begetting the same result in either case. But, as previously noticed, this has not an unlimited application, but refers more directly to a certain number of cases in which the phthisical influence is all powerful and sets up a character of its own.

It may be said that some or all of the distinguishing traits set forth as peculiar to a variety of phthisical insanity are also found associated with the miscellaneous forms. This may be true of individuals, but hardly of a class. Isolated symptoms might, no doubt, be selected as joined to other forms of insanity, but, it appears to me, there *is* a special combination of mental and physical characteristics which are the product only of that reduced vitality of which phthisis is the generic term.

Every one who has striven to make out a particular case from given data, has felt that almost unconscious inclination to nurse the favorable and to shun or conciliate unfavorable facts. Far be it from me to affect any singularity in this respect; yet, as I recall these cases again to mind, I feel that I have been faithful to my real im-

pressions, be they hasty or ill considered as they may. And, furthermore, I have found that these impressions have been strengthened and reinforced by the recollection of numerous other examples, in addition to the special list of patients I have taken for a text.

Finally, it is not phthisis in the abstract which comes by inheritance. It is that union of vicious qualities which go to make a susceptible constitution, a constitution predisposed, and we might almost say, predistined to disease.

Such a constitution is likely to be attacked prematurely, is unarmed, makes feeble resistance and yields quickly; whether the blow falls upon the lungs, the digestive system or the brain. The disease germ is vigilant, aggressive, and only awaits the befriending conditions.

Nerve Paralysis and Contraction of Involuntary Muscles.

By THOMAS W. POOLE, M. D., Lindsay (Ont.), Canada.

NOTWITHSTANDING the important advances made in physiological science, by numerous and indefatigable workers, it would really appear that in some of the observations made, for which a general concurrence has been obtained, erroneous conclusions have been arrived at which have been allowed too long to pass unchallenged.

I regret that justice to the subject I have chosen requires me distinctly to point out these seeming mistakes, and sometimes to comment upon them, when considerations of the eminence of those whom I thus venture to criticise, and my own obscurity, would lead me rather to ignore or to condone than thus explicitly to challenge the mistakes referred to.

What appears to me to be the errors in question have arisen, I think, from the effect of a preconceived hypothesis in the mind of the experimenter, which prevented him from seeing the discrepancy between the idea dominating his mind and the actual facts which he witnessed and recorded; for it is to the authentic records of physiologists themselves that I am about to appeal in justification of the modifications of physiological teaching here put forward.

In the examples now to be cited of an erroneous interpretation of authentic experiments, the idea evidently dominating the physiological mind was that a stimulus from nervous energy is necessary to induce muscular contraction. As a corollary to this idea, of course, it followed that when the motor nerve supplying a muscle was cut, or paralyzed from any cause, the muscle thus de-

prived of nerve influence was rendered incapable of displaying its contractile power.

That such an idea was apparently justified by the behavior of the *voluntary* muscles is undoubtedly true; but not so in regard to the non-striated or involuntary muscles of organic life, which have been pronounced by physiologists to be paralyzed and powerless, at the very moment that the observers saw and recorded the palpable evidences of their more or less active contraction. In fact, so far from the current teaching of physiology being true, as regards the relations of motor nerves to involuntary muscles, the very reverse is true; the actual fact being that *muscles of the involuntary class, as a rule, contract, not when stimulated by their proper motor nerves, but when these nerves are cut, or paralyzed, or dead.*

THE ŒSOPHAGEAL AND GASTRIC MUSCLES.

To come now to the facts. The statement continues to be repeated in each succeeding text book on physiology, that section of the pneumogastric nerves (vagi) is followed by paralysis of the œsophagus and stomach. Now, on the theory uppermost in the mind of physiologists—referred to above—the œsophagus *ought* to be paralyzed here, and to be reduced to the condition of a mere flaccid tube. But that such is not the case is evident from the fact that after the operation, food and drink fed to the animal, “in a few moments are suddenly rejected by a peculiar kind of regurgitation.” (Dr. Dalton’s Phys. p. 473.) It needs no argument to prove that the sudden rejection of ingesta, in the manner stated, so far from being an evidence of paralysis, is really a proof of active contraction in the muscle.

But it is said that sometimes the ingesta are detained in the œsophagus for a time, and, “owing to paralysis of this canal,” are not conveyed into the stomach. (Ib.) Dr. W. B. Carpenter, F. R. S., refers to this by stating that “if the pneumogastric be divided in the rabbit, on

each side, above the œsophageal plexus but below the pharyngeal branches, and the animal be then fed, the food is delayed in the œsophagus which becomes greatly distended." (Hum. Phys., p. 404.) Now the pharyngeal branches supply the upper part, and the œsophageal plexus, the lower extremity of this muscular tube. Mark what follows on section of the vagi between these two! The upper part of the œsophagus, whose nerves are intact, admits the food and drink apparently in a normal manner, while the lower part of the tube, which has been deprived of nervous influence, contracts upon itself, and so lessens the calibre of the "canal" as to arrest the further passage of the superimposed ingesta, as a consequence of which the œsophagus "becomes greatly distended."

Whether the ingesta are thus forcibly detained or "forcibly ejected" would appear to depend on the point at which the vagi are cut. But in either case, the result, so far from being a proof of paralysis, really bears evidence of activity of the muscle. And this is confirmed by the observation of Dr. M. Hall, that "the simple contractility of the muscular fibre [of the œsophagus] occasions a distinct peristaltic movement along the tube *after its nerves have been divided*, causing it to discharge its contents when cut across." [Italics mine.] (Dr. Carpenter's Hum. Phys., 5th Amer. Ed., p. 404.)

Dr. Burdon Sanderson expresses the idea uppermost in the physiological mind, in stating that after sections of the vagi "the muscular fibres of the œsophagus are paralyzed, so that regurgitation of food from the stomach is apt to take place." (Hand-book for Phys. Lab., Amer. Ed., p. 318.)

This word "regurgitation" seems to recur frequently in our text books. It really means a species of vomiting. It was, perhaps, but natural that physiological writers should avoid the use of the latter word, because in the theory uppermost in their minds, vomiting is due to an excessive stimulus from the nerve to the gastric muscle.

But here, before their eyes, was active contraction of that muscle when cut off from the nervous centres, and deprived of nervous agency! Hence, perhaps, the use of the term regurgitation, which seems to express a lesser degree of activity than is implied in the word vomiting.

Dr. W. B. Carpenter seems to pass over this part of the subject lightly, and it is not till treating of the effects of section of the vagi on the gastric secretions that he plainly states that, "the first obvious effects of this operation are vomiting, (in animals that are capable of it) and loathing of food." (P. 423.) He also tells us, in another place, that the reopening of the cardiac orifice, on pressure from within, is one of the first of that series of reverse actions which constitute vomiting. (P. 404.) It is evident that the "pressure" referred to and the force necessarily required to eject the contents of the stomach and œsophagus could not come from "paralyzed" muscles, which the facts show to be really undergoing active contraction.

That nerve force is actually in abeyance in the act of vomiting was fully recognized by Dr. Austie, who places it among the effects of paralysis of the medulla oblongata in narcosis. (Stimulants and Narcotics, p. 168). While the vomiting of migraine, he says, "marks the lowest point of nervous depression." (Neuralgia, p. 39.)

Had those eminent physiologists, Drs. Todd and Bowman, doubts of the truth of the physiological theory of the day, and a prescience of what the future had in store, when they wrote: "The office of the gastric branches of the vagi nerves appears from Dr. Reid's experiments to be chiefly to *control* the movements of the muscular coat of the stomach." [*Italics mine.*] (Phys. Anat., p. 493.) That is precisely what the scope of this article is designed to show—that in so far as the involuntary muscles, at least, are concerned, the function of nerve force is not to stimulate, but to restrain and control muscular activity; which all physiologists regard as an inherent endowment of muscular tissue.

THE BRONCHIAL MUSCLES.

Dr. Burdon Sanderson informs the readers of the "Hand-Book," that after section of the vagi "the muscular fibres of the bronchial tubes are in a similar condition" to those of the œsophagus and stomach. (P. 318.) Then it is evident that these muscular bands come under the rule or law laid down above, and contract, like other muscles of this class, when deprived of nervous influence.

THE INTESTINAL MUSCLES.

Dr. Lauder Brunton says: "The influence of the nervous system on the movements of the intestine has not yet been completely investigated." He adds: "Peristaltic action," which is only another name for muscular contraction, "continues in an excised portion of intestine." (Hand-book, &c., p. 525.)

This was long ago shown by Prof. Valentin, who cut away a portion of intestine from all its attachments and removed it from the body. By tying one end of the intestine, filling it with water, and then adjusting a perpendicular tube in the other extremity, it was found "the water rose in a few hours to a considerable height in the tube, owing to the contraction of the intestinal walls." What would be thought of the man who should claim this result as an evidence of paralysis of the intestinal muscle?

That the involuntary muscles of the intestinal canal are really capable of displaying active contraction in the complete absence of any stimulus from nervous agency, will appear from the following quotation from Dr. W. B. Carpenter: "The ordinary peristaltic movements of the intestinal canal are fully accounted for by referring them to the contractility of the muscular portion of its walls. The intestinal tube from the stomach to the rectum is not dependent upon the nervous centres, either for its contractility or for its power of exercising it, but is enabled to propel its contents by its own inherent powers." (Hum. Phys., p. 410.)

THE NASAL MUSCLES.

It is a curious fact, that "owing to the great size of the velum pendulum palati, the horse is unable to breathe through the mouth." (Strangeway's Veterinary Anat., p. 209.) As a consequence, respiration is carried on in this animal exclusively through his nose; and when both the facial nerves are cut, or paralyzed, "the nostrils immediately collapse, and the animal dies by suffocation." (Bernard quoted by Dr. Dalton Phys., p. 458.)

A result very similar, so far as the closure of the nostril is concerned, has occurred in the human subject, during paralysis of the facial nerve. Thus, Sir Thomas Watson, reporting the case of the girl, Jane Smith, says: "When she tried to snuff in air through her nose, not being able to keep the right nostril stiff and open, its sides came together, and no air passed up that side." (Lectures, Prac. Physic, p. 366.)

A little reflection will show that this is necessarily due to muscular contraction. The effect produced is not to be accounted for by any filling up or stuffing of the nasal passage by relaxed or paralyzed muscles, because the muscles are on the exterior of the cartilages, and mucous membrane or fibrous tissue does not contract or respond to nerve action. The obstruction is caused by the cartilages of the nose coming together, for which the only adequate explanation is the action of the constricting muscles, which as in other similar cases, assert their power when nervous restraint is removed.

SPASM OF THE GLOTTIS DUE TO NERVE PARALYSIS.

We now come to a still more striking illustration of the truth of the proposition laid down above. The aperture of the glottis is closed by one set of muscles and opened or dilated by another. The constricting muscles are the arytenoidei and crico-arytenoidei laterales, while the dilators of the glottis are the crico-arytenoidei postici.

Dr. Burdon Sanderson states that "the widening of the glottis is a condition of general muscular relaxation." He further states that the closing of the glottis is equally due to a general contraction of all the muscles; so that the glottis is closed, "not because the postici crico-arytenoidei muscles and the other dilating muscles* do not act with the rest, but because they are overpowered by the constricting muscles. (Hand-book, p. 308.)

The situation thus depicted becomes quite remarkable and full of interest, when it is remembered that the sole motor nervous supply to both these sets of muscles passes through the inferior laryngeal (or recurrent) nerve, a branch of the pneumogastric, and that when this nerve is cut or paralyzed, the closure of the glottis takes place, as a result of spasm of both of the antagonizing muscles, as just stated.

On page 318 of the Hand-book the same eminent physiologist, describing the effects of section of the vagi, says: "The glottis is partially closed, just as it is in death." How the glottis is closed in death will appear from the fact, vouched for by Dr. Austin Flint, in the fifth edition of his "Practice of Medicine," when he says, the operation of passing a probang within the larynx "is extremely difficult, if it be practicable, on the cadaver." (p. 294.)

There can be no doubt about the effect of the section referred to being of a paralyzing character, so far as the nerve is concerned, seeing that the simple section of the nerve during life, and the extinction of all nerve force in death, lead to precisely the same results as regards the closure of the glottal aperture. Dr. Burdon Sanderson adds that, "in animals with divided vagi life may be prolonged by tracheotomy," showing how complete and fatal is the spasm thus produced. Other evidence of similar import is not lacking. Thus, Dr. Austin Flint, discussing the "danger of death from suffocation" in the "obstructed inspiration" occurring in nervous aphonia,

* There are no "other dilating muscles" than the crico-arytenoidei postici,

says: "The condition is analagous to that after the physiological experiment of dividing both recurrent laryngeal nerves." (Prac. of Med., 5th Ed., p. 309.) The same author has "reported a case in which the left recurrent nerve being situated between a calcareous deposit and an aneurismal tumor, spasm of the glottis occurred so frequently and to such an extent as to prove fatal." (Ib., p. 371.)

Now since the recurrent nerve is the only motor nerve supplying these muscles, and since section or pressure on a nerve trunk cannot increase nerve activity—the nerve trunks being mere carriers and not producers of nerve force—it is evident that no other conclusion is possible than that the spasm here referred to is due to the absence of nerve force, and not to a stimulus from excited nerve action. And since nerve paralysis is thus shown to be directly the cause of spasm of the glottis, is it not necessary to infer that whatever is done by reflex action to cause spasm of the glottis must be of a paralyzing character to the nerve also? Thus, what is vaguely called "irritation," by which is usually meant an excitation or exaltation of nerve power, and which consists really in a perturbation of nerve force, must necessarily be an influence of a paralyzing character to the nerves it traverses. Such reflex "irritations" are usually attributed to brain lesions, to indigestible food, and other causes of a more or less debilitating character which may well arrest, rather than develop, the flow of nervous activity.

If it be true, that pain is "an expression of impeded and imperfect nerve energy, not of heightened nerve function," for which there is high authority (Austie, "Neuralgia," pp. 12-163), how much more is the perturbation of the nerve molecules, which constitutes "irritation," a disturbance of normal activities which is equivalent to paralysis.

This is confirmed by clinical observation. Thus Dr. Flint finds that in the treatment of this spasm "antiphlogistic measures have been employed sufficiently to show

that they are not successful." (Loc. cit. p. 299.) On the view presented above, the reason will be at once apparent, since what is evidently needed is a reinforcement rather than a further depression of nerve force. Hence it is, too, that "our best antispasmodics are stimulants." (Austie Stim. and Narcot., pp. 80-123.)

All of which, I think, establishes that spasm of the glottis is due to nervous paralysis, and not, as is generally supposed, to nervous excitation.

RELATION OF VASOMOTOR NERVES TO THE ARTERIAL MUSCLES.

I propose to prove here, on the very best physiological authority, that what is known as "paralytic hyperæmia" is—contrary to the accepted opinion—venous and not arterial.

I need not delay the reader to offer proof that the middle muscular coat of the arteries is under the control of the vasomotor nerves of the sympathetic, which regulate the calibre of these tubes; or that the chief vasomotor centre is in the medulla oblongata, with probably lesser centres in the spinal cord. These are among the well-authenticated facts of recent physiology. It is in determining the action or play of this mechanism, that I have the temerity to claim that our physiologists have made an "unscientific use of the imagination."

The theory of the text books is that when the influence of the vasomotor centre is cut off from the arterial muscle in any way, hyperæmia of the arteries results. Thus in destruction of the nervous centres by the operation of "pithing"—as a result of section of the spinal cord just below the medulla, and on section of the chief vasomotor nerve trunks, in the body or viscera, it is claimed that the corresponding arteries are more or less dilated. Dr. Burdon Sanderson contents himself with stating that under these circumstances, "the arteries are relaxed," and again, that they "become permanently larger." (Hand-book, pp. 245-256.) Other physiological teachers, such as Prof. Kuss, say that

here the arteries are "dilated," while Dr. Sidney Ringer, in his excellent "Therapeutics," has it that "the arteries remain widely dilated." (5th Amer. Ed., p. 312.) We shall presently see how far these statements are justified by the facts.

SECTION OF THE CERVICAL SYMPATHETIC.

To M. Claude Bernard and Dr. Brown-Sequard we are largely indebted for what is known on this subject, as observed by them in the famous experiment on the cervical sympathetic. Dr. Brown-Sequard enters into the details at great length in his "Physiology and Pathology of the Central Nervous System." Yet nowhere in this work, in regard to this or any other section of cord or nerve, does he once assert that the arteries are dilated. In the pages devoted to it he refers to the contemporary experiments on this subject by Waller, Donders and his pupils, by Kussmaul and Tenner, Moritz and Schiff, yet he makes no mention of an allusion to dilated arteries by any of these eminent observers. This is surely significant. With him it was always "the blood-vessels" which are "paralyzed," and the "blood-vessels" which are "dilated." He says that "the hanging down of an animal, by holding it up by its hind legs, in producing a congestion of the brain, produces very nearly all the effects of this section." (P. 143.)

From these considerations it will be evident, first, that it was by no means apparent—was indeed a matter of great difficulty to determine accurately what particular "vessels" were enlarged, hidden as they mostly were beneath the skin and its subjacent tissues. Nay, it is not too much to say, that the statement that it is the arteries that are enlarged is purely hypothetical, and not based upon an actual demonstration of the facts. Secondly, it will be also evident from the statement just quoted from Dr. Brown-Sequard, that venous hyperæmia, the result of the blood being forced out of

the arteries by their partial contraction, "very nearly accounts for all the effects of this section." The truth of this will not only appear from what is to follow now, but from the effect of other sections to be noted.

Notwithstanding an increased afflux of blood, and consequently a relative elevation of temperature, with heightened sensibility, "the intimate acts of nutrition appear to be modified in nothing. * * * Nor does it appear that this hyperæmia, however intense or prolonged it may be, has ever the effect, save under exceptional circumstances, of determining by itself the development of inflammatory action." (M. Charcot, *Lect. Nerv. Sys.*, pp. 90-91.) This could hardly be the case if the hyperæmia were arterial.

Among the effects of this section on muscles, as recorded by Dr. Brown-Sequard, are contraction of the pupil, retraction of the eye-ball, partial closing of the eye-lids, contraction of "almost all the muscles of the eye," and also of the muscles of the angle of the mouth and nose; contraction of the erectile muscles of the ear, and others. Now, seeing that it is *contraction*, and not relaxation of all these muscles, which follows section of this nerve, the law of analogy would require that the muscles of the arteries supplied by this nerve be contracted also: otherwise the anomaly would exist of the same nerve producing contraction in a large number of muscles and relaxation in a single instance. Why should the arterial muscle be regarded as an exception among so many others, especially when all the facts of the case are compatible with arterial contraction and venous fullness?

As for the second part of the experiment, in which the hyperæmia is dissipated by faradization of the distal end of the cut nerve, that is easily accounted for. The terminal branches of the cut sympathetic evidently influence the muscles of the head and face over a wide area. As is well known, the effect of faradization is to set up a succession of rapid contractions

and relaxations in muscular tissue. The pressure thus brought to bear on the swollen veins would amply suffice to force their contents onwards, and thus to dissipate the venous congestion. Examples of this very result are not lacking. Thus when Kolliker applied one pole to the umbilical artery and vein of a fresh human placenta, there followed contractions by which the veins forced out their contents and changed into bloodless strings." (Meyer's Elec. Hammond, p. 88.)

The following quotations from Rosenthal's "Diseases of the Nervous System," Vol. II., Wood's Library, have a peculiar fitness here: "Kussmaul and Tenner have shown in a series of experiments, by placing a watch-glass in the opening of a trephined skull, without allowing the air to enter (Donder's plan), that compression of the carotids causes capillary anæmia and venous hyperæmia of the brain and meninges." (P. 64.)

"In Verneuil's patient, upon whom ligature of the carotid was performed for a tumor of the parotid gland, persistent contraction of the pupil developed shortly afterwards, with rise of temperature and vascular dilatation upon the temple and gums, and abundant perspiration upon the side of the face, corresponding to the operation. All these symptoms can be produced experimentally upon animals by dividing the cervical sympathetic." (P. 26.)

Here is a remarkable proof that the section referred to causes arterial contraction (and not dilatation), seeing that the other effects of the section are equivalent to those produced by ligature of the carotid.

SECTION OF THE SPLANCHNICS.

In a "demonstration of the vasomotor functions of the splanchnic nerves," the chief editor of the "Handbook for the Physiological Laboratory" (Amer. Ed., p. 258), informs his readers that these nerves contain vasomotor fibres which "are distributed to the arteries of the abdominal viscera."

We approach this "demonstration" expecting to find that when these nerves are cut the predicted results will follow, in the arteries they supply being more or less "relaxed" or "dilated." What is our disappointment, not to say disgust, to find in all that follows in this chapter of the "Hand-book," the arteries are never once alluded to! Thus the very pith and point of the so-called "demonstration" is entirely ignored! What occurs is thus stated by Dr. Burdon Sanderson: "After section of both nerves the vessels of all the abdominal viscera are seen to be dilated." What "vessels" are these? Not the arteries, because Dr. B. S. continues, with an apparent innocence and *naivete* that is quite charming: "*The portal system is filled with blood; the small vessels of the mesentery and those which ramify on the surface of the intestine are beautifully injected; the vessels of the kidney are dilated, and the parenchyma is hyperæmic; all of which facts indicate, not merely that by the relaxation of the abdominal blood-vessels, a large proportion of the resistance to the heart is annulled, but that a quantity of blood is, so to speak, transferred into the portal system, and thereby as completely discharged from the systemic circulation as if a great internal hemorrhage had taken place.*" (P. 260.) [Italics mine.]

It needs no italics to give point and force to this remarkable admission. It is merely stating, with a little learned circumlocution, that the arteries are empty and the veins are full! The "beautifully injected vessels," which the learned editor so much admired, are not arteries but veins, the blood in which has become "bright red, like arterial blood," as Prof. Kuss explains of venous blood in the mesentery, "because oxygenation has been effected simply by exposure to the air." (Lec. Phys, p. 326.)

The contraction and emptiness of the arteries, after section of their vasomotor nerves, is thus proved, on the very highest authority. Where now is the justifi-

cation of the assertion that after a section of this kind the arteries are dilated and hyperæmic?

Whatever obscurity there might be as to the actual results of section of the cervical sympathetic, for obvious reasons, there can be no mistake as the results here.

Now the law of uniformity of cause and effect, demands that what is true of the relative state of the arteries and veins after section of the splanchnics, must be true also after section of the cervical sympathetic—and since the arteries are thus shown to be empty and the veins full in the former case, the same condition must be held to prevail also in the latter.

It is worthy of note, in this connection, that both after section of the spinal cord, and after section of the splanchnics, blood pressure falls, and in both cases may be restored by faradization of the divided cord or nerve. It is evident from this, that the fall of blood pressure (as shown by the kymograph in the carotid) on section of the cord, is not to be regarded as an indication of arterial relaxation, as appears to have been done; because blood pressure fell also after section of the splanchnics, where we know positively that arterial dilatation could not have taken place.

It may be asked, how could faradization of the spinal cord or of the nerve, restore the pressure or tension in the arteries, if the heart and arterial system were already empty? Dr. Burdon Sanderson supplies the answer, indirectly, in stating: "It is seen that after section of the cord the heart is flaccid and empty, and that its cavities fill and its action becomes vigorous, when the vascular contraction caused by excitation of the peripheral end [of the cut cord] forces the blood forward so as to fill the right auricle." (P. 251.) Now the only blood which could be "forced forward so as to fill the right auricle," is *venous* blood from the distended portal system. Thus, it will be seen that all the facts fit, and as it were, dovetail into each other, in establishing that nervous

paralysis and contraction of the arterial muscle go together, the result being hyperæmia, not of the arteries but of the veins.

The explanation just quoted from the Hand-book, as to the forcing forward of the venous blood, as an effect of the faradic current, confirms the explanation made above, as to the dissipation of the venous hyperæmia by the same current after section of the cervical sympathetic.

STATE OF THE ARTERIES IN DEATH.

Not only are the arteries invariably as empty as their physical structure will permit them to be, when their nerves are cut or paralyzed in the living body, but such is also their condition *in death* of the body, when nerve force is extinct. This is a fact too well known to need any special proof. It is a fact, however, which ought to be explained by those who hold that in a condition of nerve paralysis the arteries are "dilated" and hyperæmic.

THE OPERATION OF PITHING.

What has just been said of the contracted and empty state of the arteries is true also after the operation of "pithing" (in which the medulla and spinal cord are destroyed); as any one can easily satisfy himself, as I have done, by actual experiment. This is inadvertently proved to be the case by Dr. Burdon Sanderson in his account of an experiment designed to prove the contrary. Two frogs are taken. One is "pithed;" in the other the nervous centres are uninjured. In both the heart is carefully exposed and the single ventricle slit open, so as to show the state of the great vessels. The experiment is intended to prove that in the pithed frog the arteries are "relaxed" and full of blood. On Dr. Burdon Sanderson's statement the results are these: In the pithed frog, "although the heart is beating with perfect regularity and uniformly frequency, it is empty, and in consequence, instead of projecting from the opening in the anterior wall

of the chest, it is withdrawn upwards and backwards towards the œsophagus." The heart and its appendages "are alike deprived of blood;" but on opening "the rest of the visceral cavity," "*the intestinal veins are distended.*" In these, "the whole mass of blood has come to rest, *out of reach of the influence of the heart.*" (P. 246.) How significant is this! If the arteries were dilated, and consequently full of blood, this blood could not be said to be "out of reach of the influence of the heart." But this is not all. The Hand-book continues: "In the frog deprived of its central nervous system *only a few drops of blood escape*—the quantity, that is to say, previously contained in the heart and in the beginning of the arterial system. In the other, *bleeding is not only more abundant, but continues for several minutes after the section.*" (Pp. 246-296.) [Italics mine.]

Is it not evident that in the case of the pithed frog, the arterial system promptly emptied itself into the now "distended veins," and had "only a few drops of blood" left to drain away through the open ventricle (the frogs being both suspended); while in the case of the other frog, whose nervous system was intact, this arterial contraction did not take place, and the arteries continued to bleed for several minutes till drained of blood.

The "Hand-book for the Physiological Laboratory" from which I have quoted so often, occupies to-day a leading place as an exponent of physiological science. The reader who studies the details of the experiment just quoted will be surprised to find, that here again, in an experiment specially designed to prove that "all the arteries are relaxed," the condition of the arteries is completely ignored, and never once alluded to! The arteries *ought* to be "relaxed," "dilated," and even "widely dilated" here, on the theory of the text book, but they are empty and contracted, their final act being as in death from other causes, "to drive their content ^{it} to the veins." (Kuss. Phys., p. 181.) ner

Indeed the student of physiology has just reason to complain, and even to use strong language, in regard to the character of the experiments thus put forward in the name of science. For this, of course, Dr. Burdon Sanderson is no more to blame than others, though as editor of the Hand-book, his name is necessarily associated with it.

AN EXPERIMENT OF DR. BROWN-SEQUARD.

As this article is, perhaps, too long already, I must notice in the briefest manner, an experiment of Dr. Brown-Sequard in which the doctrine here supported is confirmed in a remarkable manner:

In a dog, a section was made of a lateral half of the spinal cord just below the medulla. The result was, extreme hyperæmia of the "blood-vessels," to use Brown-Sequard's term, of one posterior limb, while the "blood-vessels" of the other posterior limb displayed a state of spasm and ischæmia quite as extreme. "Very often the spasm persists for days," wrote the observer, "and it may be so great that the circulation is almost entirely suspended," so that "the cutting of the skin hardly gives a drop of blood."

The question at once arose, was the paucity of blood in one limb due to the excess of blood circulating in the other, or *vice versa*? Was the spasm on one side, or the dilatation on the other, the primary or direct effect, through the spinal vasomotor nerves of the half section of the cord?

In order to solve this question, Dr. Brown-Sequard made "direct experiments." Among others he ligatured the iliac artery feeding the dilated blood-vessels of the hyperæmic limb, thus directing "almost the whole of the blood coming from the aorta" into the iliac artery of the limb in which the circulation was so much diminished. Notwithstanding this, the spasm was but partially overcome: "the temperature rose but little;" and "it was quite evident the small arteries near the toes did not allow the blood to pass freely."

Here was complete evidence, not only that there was spasm, but also that this spasm was arterial. Although the vasomotor mechanism of the spinal cord is as yet only very imperfectly understood, there seems no reason to doubt that this active contraction of the arterial muscle was here, as elsewhere, due to nervous paralysis, the result of the half section of the spinal cord.

It is for the candid reader to say, whether the facts adduced above justify the proposition that active contraction of involuntary muscles, generally, is associated with nervous paralysis.

The Moral and Industrial Management of the Insane.

By H. E. ALLISON, M. D., Willard, N. Y.

TWO very important factors enter into the treatment of the insane, one of which is therapeutic relating to the administration of medicine for the cure of purely material or physical conditions by which we hope to indirectly benefit the mind; the other is a moral, or psychological influence essentially immaterial, by which we minister directly to the mind itself through all the avenues of its special senses.

These factors are, to a large extent, inseparable in the treatment of any disease, but more especially are they combined in the treatment of all forms of mental disorder. A patient ill with pneumonia or any acute disease, or who is under the necessity of submitting to a surgical operation, may be relieved by the proper administration of drugs and by careful nursing, or by the mechanical appliances of the surgeon. In such conditions the surroundings of the patient, so long as they are clean and healthful, call for no other especial attention. The course of the disease is usually short and the sick are soon able to return to their daily avocations. In diseases of the mind, however, the malady is, in a large number of cases, chronic in its duration, and necessitates a removal from home and a prolonged confinement apart from all the ordinary occupations and diversions of life. The insane have had an entrance into a new world with changed and novel surroundings, and peopled with shadowy creations of the imagination, with strange voices and sounds and all the lurid fancies of a disordered mind. Into this double world, doubting and fearing and often in the frenzy of excitement, all of the unfortunate

insane must enter and many pass years of existence there.

During the acute stage of mental disease where there is great disturbance of the bodily functions and of bodily health with wasting of the tissues and maniacal excitement, restlessness and rapidly failing strength, the medical treatment designed to restore an exhausted condition, nutritious food in abundance, sedatives and tonics are proper and the treatment is eminently medical, because in acute delirium the patient is often unheeding and unwilling to listen or to be diverted from his violent and destructive acts, and needs the quieting effects of medicines and feeding. Nevertheless among this class many will be found who may need only slight personal authority, or who, in answer to firm and repeated demands, will yield their attention and by conversation and judicious reasoning may be led to assert somewhat of a self-control and to restrain themselves, often being more firmly bound by their promises of better behavior than many of their saner brethren. There is, also, among this class of patients an irritability and vindictiveness often aroused by unnecessary force or violence, and a desire for revenge for insults or grievances, real or fancied, that can often be appeased by a respectful hearing and a confidence on the part of the patient, that he will under all circumstances be justly treated and allowed as much liberty as his own condition and conduct will permit. This ill feeling of revenge can also be prevented from arising in the minds of patients by kindness and attention on the part of attendants, and often by non-interference when interference is not needed, and many occasions for misunderstanding thus be avoided. Let the patient understand that he, too, bears a partial moral responsibility for all his acts of viciousness.

In dealing with the purely psychical and immaterial aspect of insanity, we must approach the patient through the avenues of his special senses, particularly through those of the eye and ear by the avoidance of all

unpleasant sights and sounds. The æsthetic side of his nature, which adds so much to his enjoyment, will be found to be accessible in various ways. If the patient has been well educated and is naturally refined and cultivated in his tastes and habits, his appreciation of comfortable and attractive, though not necessarily extravagant surroundings, books for diversion, elevated recreations, amusements and pleasant companionship, will conduce materially to his recovery, and the decorations and cheerfulness of the wards will exercise a greater curative effect upon him, and he will be found more amenable to reason and will more readily respond to your appeals to him to exert the full measure of his will power in controlling his impulses to acts of violence and destruction. The character of the attending physician is thus able to be impressed upon the halls, creating an atmosphere of cheerfulness and confidence. Upon this factor of personal influence rests much of the fame of many distinguished alienists, whose influence extends far beyond asylum walls and often beyond their age.

On the other hand, should the patient be ignorant, uneducated and naturally of simple tastes and from the laboring classes of our population, more active employment and manual occupation will often busy him and be so in accord with the previous tenor of his life, that hard work and freedom from care is for him the best panacea. For lack of proper discretion in the allotment of these daily tasks, how often has complaint been made by asylum patients that they have been compelled to labor at that which was unfamiliar, distasteful and repugnant to them.

The question of employment or of mental diversion, however, does not enter to so great a degree into those cases of acute mania where the patient's condition is one of great mental and physical prostration, as it does into the manner of treating that large class of chronic cases and cases of quiet, inactive, mental disease, attended with little bodily disturbance, and which make

up the large bulk of the population of all our asylums for the insane. Among this number are found a large percentage, perhaps a large majority, of patients who, under proper influences, may be taught useful labor and who are amenable to much the same influences that we are, tractable, readily managed and willing to aid, not always very efficiently, but capable of being instructed and of improvement in their habits of industry and the care of their person. This principle of providing labor for the insane and of occupying their minds and their hands is one that prevails in every well-conducted asylum, and undoubtedly exerts a healthful influence upon the minds and bodies of those employed. The brain has some characteristics of a dual organ, and if a local lesion occurs in one hemisphere incapacitating the patient temporarily from the use of his reason and will, by proper cultivation and education, the other hemisphere may assume in a measure the functions of the diseased half and restore the patient's usefulness to himself and to the world. The fact that patients often recover after many years, shows that mere duration of disease does not absolutely preclude all hope of final restoration, either complete or partial. After the paroxysm of acute insanity has passed away, many patients may be aroused from sluggishness and stupor, or mischievous and destructive habits, or habits of untidiness may be greatly improved by constant attention and carefulness on the part of attendants. It is, however, in the soothing of disturbed cases and the suppression of acts of violence, and the absence of mechanical restraint, that the influence and quieting effect of asylum treatment is most manifest, and which contrasts strongly with the usages and policy of even twenty years ago. Nevertheless, the condition of the insane in this country is still lamentable, in many States, particularly that portion of our insane population that we designate by the term chronic. Instead of properly providing for such cases and endeavoring to raise them to higher planes of mental and

intellectual life, rendering their condition comfortable and affording, to many, their only hope of improvement or cure, it has been, and still is, the policy of many sections of our country to relegate them to jails and poor-houses, and to the inattention and abuse, often, of poorly equipped almshouses with insufficient attendance and all its accompanying neglect. The fact that in our own State where the county house system is considered to be a good one and under constant espionage and subject to the safe-guards of visitations from State and Local Boards, the condition of patients deteriorate, shows that the asylum care, with its thoughtful provision for employment and recreation and a higher standard of maintenance, can do a great deal to eliminate much of what is intractable in many cases, and render dangerous and homicidal and destructive patients quiet and orderly and industrious.

Since the inception of the Willard plan, many asylums have adopted the principle of the segregation of a large number of the insane in separate buildings upon a great farm, with accessible out-of-door work for the strong, and a main hospital or building for acute cases and for the more feeble and infirm. The increased personal liberty which results, the larger freedom enjoyed, the classification of the disturbed and quiet and of the demented, helpless class, which is rendered possible, has an elevating effect upon the whole population thus provided for. The provision for the insane, notably as at Gheel, in separate families and cheaply, is not likely to prevail, for the reason that this system is the result of a peculiar, natural growth and of a sentiment created and fostered by religious tradition, and of the intermingling, for generations of the insane with their care-takers. The wages of the peasant are not more than a few cents a day, and the accommodations furnished the insane, although sufficient and satisfactory for this class, would, in the majority of instances, be shockingly bad for the average American unused to the deprivations and the pinchings of poverty, so common to the condition of the

poor of Belgium. Attempts in this direction have not been, and are not likely to be, successful.

This principle of segregation and classification has been carried in other institutions to a greater degree, perhaps, farther than is warranted, but the nearer an asylum for the insane can be made to approach the village household, and still serve the purpose of a useful institution for the care, treatment, custody and elevation of the condition of its inmates, the better will it become. The poor and indigent do not require, and do not appreciate, extravagant surroundings and grand and palatial structures, to which they have never been accustomed in their own homes, and which are not congenial to them insane, while the few that are abundantly rich, and liberally educated, who are accustomed to stately homes, to the highest enjoyments and the luxuries of life, would feel their deprivation. Proper provision for the extraordinary comfort of this class is certain to be made in private asylums. The great majority of the insane from the great mass of the people, need simple, plain and hygienic buildings, with occupation and amusement, and proper day and night attendance.

The tendency of the insane is to degenerate, and without urging, oversight and constant care, they will sink lower in the scale of intelligence, and become less and less able to care for themselves. It is so with men generally, sane or insane, they need the stimulus of having to provide their livings and of having to maintain a certain position in society which urges them to their best efforts. The insane are largely deprived of this incentive, and consequently the various occupations, diversions and educational projects, have in view the development of their weakened and beclouded intellects, the strengthening of their habits of self-control, and the arousing of their ambition and pride, beyond any class of men that need our sympathy. It is the lifting up, the bettering and amelioration of the condition of the large mass of the insane, that should claim attention and demand our aid. Many,

by means of employment and encouragement, become sufficiently improved as to be no longer a public charge, and many are restored to the world as workers, who would otherwise have always remained a helpless burden and care. It is for this reason that farms have been added to asylum grounds, museums built, various industries established, trades inaugurated, indoor employment furnished, dances and amusements provided, educational schools or classes started, halls beautified, neatness and cleanliness compelled, and everything that can reasonably minister to the well-being, comfort and pleasure of the patient obtained to relieve the listlessness and ennui of asylum life, and to arouse a spirit of healthful, mental and bodily activity, without which the human mind, even that portion of it spared by disease, will rust and degenerate into a helpless condition of unambitious and discontented idleness. These provisions are certainly required from a medical point of view, but they may be considered psychological and immaterial, furnishing food to the mind and strengthening it, preventing it from dwelling upon itself and giving relief from that dreadful introspection which must bring depression and melancholy and often despair to many of those who are insane and conscious of their mental unsoundness. These diversions, or employments, must needs be of a very simple nature, entailing slight personal responsibility, and little care and thought which the insane are often not competent to bear, either from the fact that their minds are so enfeebled that they cannot exercise very much thought upon their work, or if they do so, the mental tension necessary to the accomplishment of their daily tasks, if too great, may break them down again. Patients at times are discharged too soon, and the return to the activities and cares of life proves too great a strain. Simple work upon the farm of a very elementary character, with short hours of labor and, also, grading, gardening, and lawn culture, the care of the dairy, and, for certain special classes, work with the shovel and wheelbarrow, form an outlet for, perhaps, the largest number of men

and leads certainly to improved physical health, and, in many cases, to a corresponding benefit to the mind. Sewing in its simpler forms, domestic duties of the kitchens and laundries and hall work are, perhaps, the most feasible employments for women. The higher occupations, necessitating skill and training are also available for a very great number, but not for any large mass of patients, although there will always be some capable of doing excellent work and many who can be specially trained. In several districts of England, weaving has been a prominent industry, but those in charge of such asylums have said that all their workers were weavers by trade, and that it was difficult, if not impossible, to train those ignorant of it previous to their admission. Here at Willard, perhaps, experience would appear to warrant the same conclusion as, with few exceptions, our skilled carpenters, shoemakers, blacksmiths, tailors and painters have been such before admission, still under oversight much may be accomplished in all these directions.

In general, the employment must be light and of such a character that it can be comprehended by minds of a very limited grasp. It would be desirable if some outdoor employment might be afforded to women, but it could not be provided very extensively, from the fact that such employment is not readily found, and because women are not generally accustomed, in this country, to out-of-door labor. The picking of small fruits, flower gardening, hop-picking, the gathering of orchards, in a partial way, might afford some occupation, but it would seem that out-door walks and airings are nearly all that can be provided in that direction.

The question of employment of the insane, of amusement and diversion, is one that has come into greater prominence of late years, and constitutes one aspect of the moral treatment of insanity. The great benefits of this method have never been questioned since the days of Pinel and Esquirol, but often disagreement has arisen concerning the means to be employed, and various asylums

have gained notoriety by methods which have claimed attention from their novelty, rather than from any originality of principle involved. Thus asylums devote their attention to the establishment of literary schools and enthusiastically urge their claims for recognition as advanced leaders; others occupy their inmates at weaving, clay-modeling, brushmaking, etc., and here at Willard we excel in farming, at the wheelbarrow, and at tailoring. These are all means to the same end, the diversion of the insane mind, the inculcating of habits of industry and of self-reliance, with the additional accompaniment of contentment and cheerfulness and good order that results from any and all employment. Here we have recently started a school as a new method, to us, of affording mental discipline and of exciting interest, and adding a stimulus to mental exercise and at the same time affording a proper and pleasurable diversion. Dr. Lalor of the Richmond District Asylum, Dublin, has long been an enthusiast in the work, and advocates the education of all educatable insane, particularly of idiots and imbeciles. The report of the special committee of the Charity Organization Society, appointed in England in 1876, to inquire into the education of this class, says in reference to them: "A small proportion of idiots, imbeciles and harmless lunatics may be made self-supporting; that a further larger proportion may be trained to do some useful work; that, as a general rule, the habits of the remainder can be improved so as to make their lives happier to themselves and less burdensome to others. Their education should be largely physical and industrial, and should be commenced at an early age, and they ought not to be associated with paupers in union houses." Following the example of Dr. Lalor, several other small schools are in operation in English county asylums. Dr. Lalor does not confine himself to the literary teaching of patients alone, but includes industrial training and the teaching of habits of good order and obedience, which is educational in its broadest sense. He, however, is enabled

to give a larger prominence to the purely literary aspect of the school from the fact that many of the inmates of his and other British asylums are idiots of a high grade or imbeciles, the teaching of which class is provided for in this State in separate institutions. The classes formed here at Willard are fully organized, the teacher is an enthusiastic instructor and a diligent worker, and the pupils seem greatly pleased, are entertained and enjoy their exercises, and the class-rooms have the appearance of an orderly and industrious school. The interest extends out of recitation hours and engages the attention and occupies the mind throughout the day, and has resulted in rousing dormant faculties, and also in stimulating inquiry among those who do not attend.

The insane are susceptible to approbation for good conduct, and have usually a strong sense of justice and a knowledge of right and wrong. Their volitional power of self-restraint is often weak, and can be strengthened by slight rewards and privileges, or by the deprivation of such special liberties as have been granted them for good behavior. In a general way they recognize this weakness and are grateful for any aid that will enable them to overcome it. A proper classification assists in strengthening their will powers, for if a patient knows that his stay upon a quiet, pleasant hall depends upon his good behavior and upon his forbearance in annoying his associates, he will repress many impulses to violence and destructiveness and noisy excitement. Open misbehavior should meet with disapproval and reproof, or with correction administered with impartial justness with great certainty and firmness, and with no other motive, in any case, than kindness to the patient. Some slight remuneration for labor performed¹ and sympathetic appreciation of their efforts at self-control will often result most favorably, and change for the better the characters of many individuals.

As an incentive to self-restraint and to relieve the irksomeness of confinement which many of the insane feel

very keenly, a system of paroles adds much to the freedom and conduces to the recovery of strength and of mental vigor, and in many cases renders their life more agreeable, and many patients happier and more tractable. A still further extension of this would be a legal provision for the granting of furloughs, to those who by their good conduct and peaceable behavior should deserve a more extended and severer test, by mingling again with the world, at their homes, on trial for certain periods, which furloughs might be terminated by a discharge or by return to the asylum, according to the resulting mental state of the patient.

The open-door system is another aspect of this idea which has been tried in various asylums with varying degrees of liberty. In all large asylums, where detached buildings are in vogue, a sufficient number of patients could be found to occupy a cottage without the ordinary restraints, and with large lighted windows and free from asylum bars. Some asylums have already open wards, and in many more a larger personal liberty is enjoyed than formerly.

The individual characters of the patients themselves must not be lost sight of. The insane may be roughly divided into the active and violently disturbed cases, needing more, especially therapeutic and dietetic treatment, the chronic, quiet, healthy and ordinarily harmless class, and the extremely demented and feeble filthy. The two latter constitute the large bulk of the insane. This division is usually recognized and accommodations have been provided for them here, and a more extended classification made at Kankakee.

Moral treatment may be defined as "every mode by which the mind is influenced by the mind itself." Even the filthy and depraved can be improved by proper training in habits of neatness. It often depends upon who takes care of an insane person, and upon how he is taken care of, whether he is dangerous, excited, noisy or untidy in his habits. This is exemplified daily

by the improvement which takes place in the condition of cases transferred from the county houses. Patients that previously have been dirty and slovenly and careless of personal appearance, become usually quiet, neat and tractable; and clean and orderly patients transferred to county custody, often lapse into bad habits from lack of care and attention and insufficient attendance. The use of night service has visibly changed the condition of this helpless class wherever it has been employed efficiently, and with every increase in this care still further improvement will follow, which not only benefits many individuals, but raises the standard of whole wards.

Much has been accomplished in the way of a more Christian and enlightened manner of caring for the insane and providing for their proper and humane treatment. In the United States there are one hundred thousand under custody, but among this large army are many thousands whose condition is deplorable, and who suffer more than neglect. All are not beyond hope of recovery or improvement; none are beyond the limits of our sympathy.

We would not in the least detract from therapeutic measures, for the medical treatment of the insane, through the organs of the body, must ever be the chief element in their care and cure. But the surroundings, the external influences, the personal attention and care, the good habits inculcated, and the persistent efforts to enforce an obedience to the demands of the decencies and proprieties of life, as a collateral and adjuvant method of treatment, is of great value. Each without the other is useless, and the latter occupies a place so prominent, that no physician can be considered as having discharged his whole duty, who does not profit by both methods, and endeavor to exercise each in the highest degree that his knowledge and opportunities will allow.

The Role of the Nervous System in the Causation of Vitiligo.*

By A. H. OHMANN-DUMESNIL, A. M., M. D.,

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IN disease we find generally that nutrition is, in some degree, more or less perverted; that the normal equilibrium between waste and repair has been destroyed. And the agency which tends to preserve this equilibrium, which acts as the normal regulator of the various functions of the body, resides in the nervous system. So that it may be asserted that nutrition and the perturbations it undergoes are almost always directly dependent upon normal or perverted nerve action, whatever its remote cause may be. And when the great nerve centres or the centres in direct communication with them suffer, there is a corresponding change in the general process of nutrition.

Vitiligo or acquired leucoderma is generally classified by dermatologists as a disease characterized by an atrophy and hypertrophy of the pigment of the skin, the former being central and the later peripheral. If we examine its clinical characteristics we will find that the appearance which it presents is that of a macule or spot of varying size or shape, more generally roundish or ovalish, of a milky white color. This whitish appearance is made much more prominent from the fact that at its periphery there is an increased height of color manifested in a yellowish or brownish discoloration. This latter is sharply defined against the white spot, and gradually fades into the normal skin. The spot itself increases peripherally, slowly or rapidly. It is apparent,

*Read before the St. Louis Medical Society, Feb. 6th, 1886.

then, that it really consists in a *displacement* of pigment which is centrifugal, and that the want of coloring matter in the central portion is balanced by its excess in the peripheral part.

We know furthermore that there is, perhaps, no other single organ having such a great extent as the skin and the richness with which it is supplied with glands, blood-vessels, lymphatics and nerves can be very easily demonstrated. We also know that a great many of the diseases of the skin are due directly to nervous influence, organic, functional or reflex; and there is no reason to doubt that impaired or perverted innervation or organic nerve changes may be the cause of a perversion of the nutrition of the skin, and manifested by an improper or perverted distribution of pigment.

Besides we have an analogous condition in the case of discoloration of the skin, due to liver troubles or to uterine diseases, where an excessive development of pigment takes place through reflex action springing from some irritation of a nerve centre.

Cases of vitiligo have been observed from time to time which seemed to point very definitely to a nervous origin. The two following cases, occurring in my own practice, I wish to allude to briefly, as being very pertinent to the subject:

CASE I. W. G——, aged thirty-five, is of a spare build, but has always been in apparent good health. Is of a "nervous temperament" and was considerably troubled by two spots which appeared sometime before consulting me. He was solicitous concerning them because they were increasing in size. At the time he sought my advice the spots were about the size of a silver dime, round and situated on each side of the chin, equidistant from the mesial line. The beard was white at the site of the vitiligo. He was advised to make use of an ascending galvanic current, which he did. He informed me a few months later that the spot on the right side had almost disappeared, and that on the left was considerably improved. At the same time he confessed that he had been negligent in attending to it. This is the

more easy to understand when it is known that he is a physician.

CASE 2. C. M—, aged twenty-eight, is of powerful build, but unfortunately the possessor of what he calls "weak" nerves. There is an instability of the nervous system which is sometimes very distressing in its results to the patient. When first seen, the vitiligo involved a part of the chin, of the neck, of the pre-auricular space, of the eyebrow and of the scalp of the right side. On the chin and scalp, as well as the front part of the neck, the trouble could be seen to be abruptly defined at the median line, being entirely limited to the right half of the face and head. The hair on these different patches was perfectly white. He was given ascending galvanic electrization and local stimulants to apply to the spots. He came to my office rather irregularly for some time and distinct improvement declared itself. After about three months of this irregular treatment, the spots were commencing to regain their normal color, the hair having, to a great extent, ceased to be white. The patient became tired, probably, and ceased coming.

From a limited survey of the literature of the subject, it will be found that but few have recognized a nervous origin for this disease. Cazenave and Schedel* say that the cause is one which cannot be determined. E. Lesser† says that we still lack any explanation, and he is not disposed to attribute any case to nerve action, preferring rather to suppose that symmetrical parts of the skin are equally affected by any morbid process affecting the integument. Dr. A. Harvey Reed‡ considers the disease a purely nervous affection under protest until elucidated more. He has used electricity without success, but fails to state what sort of a current he has employed and in what manner. Morris|| does not discuss the etiology of vitiligo, simply stating that no remedies have been found to remove the patches. Neumann§ whilst

* *Traité abrégé des Maladies de la Peau*, 1828.

† *Ziemssen's Cyclopedia*, (Wood & Co.), 1885.

‡ *Trans. Ohio State Med. Soc.* 1885.

|| *Skin Diseases*, 1885.

§ *Hand Book of Skin Diseases*. Trans. by Bulkley, 1879.

acknowledging that very innervating diseases, such as typhoid, may cause partial discoloration, laments that in the majority of cases we do not know the cause; Robinson* speaks about in the same strain. Hyde† regards its etiology as obscure "unless the strong probabilities in favor of its occurrence under the influence of perturbed innervation be accepted as conclusive." Piffard‡ thinks that most of the speculations regarding the cause of vitiligo are not provided with a sufficient basis of fact to even render them probable, and yet theoretical considerations would lead him to suggest the use of the galvanic current. Kaposi|| says simply that we are not able to cure vitiligo by any of the means at our disposal. Liveing§ states that well-marked unilateral leucoderma is almost unknown in England. Wilson¶ says that the disease is generally symmetrical. Tilbury Fox** has seen cases where the sensation was blunted, or, at least, we are led to infer this from what he says. He says, furthermore, that he "cannot but think exposure to the sun's rays has much to do with its production, deranging the pigment formation in the skin." Hillier†† makes no comments, whatever, on this disease. Thomas F. Wood‡‡ in describing a case, where almost exact symmetry existed, states that "to say it is due to faulty innervation scarcely brings us to a nearer solution."

On the other hand we find some authors who are not only advocates of the nervous element in the causation of this disease, but unwilling witnesses have placed themselves upon record. Bulkley||| says "I have seen marked benefit from the use of phosphide of zinc and nux vomica." Duhring§§ in his excellent work when speaking of the

*Manual of Dermatology, 1884.

† Diseases of the Skin, 1883.

‡Materia Medica and Therapeutics of the Skin, 1831.

||Hebra and Kaposi. Lehrbuch der Hautkrankheiten, II. 1875.

§Diagnosis of Skin Diseases, 1879.

¶ Diseases of the Skin, 1867.

** Skin Diseases, 1831.

††Hand-book of Skin Diseases, 1870.

‡‡Notes on Leucoderma. Jour. Cut. and Ven. Dis. I.

|||Manual of Diseases of the Skin, 1834.

§§Diseases of the Skin, 1831.

etiology states that "while, as a rule, no satisfactory cause can be offered for its development, it seems to be due to some disturbance of innervation." Leloir and Chabrier* have noted changes in the peripheral nerves in a case of vitiligo and Dejerine† has also made the alterations of the nerves of the skin in a case of vitiligo the subject of a paper.

Thus it is seen that a hasty and superficial glance at a part of the literature of the subject shows quite a diversity of opinion, but it also shows that those who have paid the most attention to the subject and those who have studied this disease, seem to be pretty well agreed that the nervous system has quite a considerable part to play in its production. And to more clearly establish this conclusion, as a legitimate deduction from certain premises, I will recapitulate the arguments upon which it is based:

1. There are analogous cases where pigment loss or disturbance is known to depend upon some functional or organic trouble of the nervous system. Take for example the blanching of hair through mental emotion and the loss of pigment of anæsthetic spots in leprosy. We have here conditions where the relations of cause and effect are very clear.

2. Another somewhat analogous action is where there is an excess of pigment due to nervous influence. This we find well illustrated in chloasma, which is almost always caused by reflex nervous action. In fact there is no other plausible cause given for it. In both these disturbances of pigment, we merely have variations from a certain type of which vitiligo is another variation, the three being types of loss, increase and displacement of the cutaneous pigment. Besides pigmentation may be induced by local irritation, such as cantharides, etc., which act upon the terminal nerves.

3. The distribution of the disease is another very

*Comptes Rendus de l'Académie des Sciences, 1879.

†Note Sur les Altérations des Nerfs de la Peau dans un cas de Vitiligo. *Progrès Médical*, 1881.

strong presumption in favor of its nervous origin in a considerable number of cases. It is, as a rule, symmetrical and quite often unilateral. I have given marked examples of these two in my cases which, to my mind, are very conclusive upon this point.

4. The concomitant nervous phenomena also seem to corroborate the idea that the cause of vitiligo in many cases is directly traceable to a neurotic origin. We find that the majority of patients having the dermatic affection are either the subjects of some nervous malady or are the possessors of what they themselves term "weak" nerves, and are persons predisposed to, and who easily acquire nervous diseases, besides, the family history generally contains a pretty fair record of nervous troubles.

5. The effects of nervines have been quite marked in some cases. They have never been given a sufficient trial to derive a legitimate conclusion, but all means used to tone the nervous system have always been followed by benefit, more or less marked in the general system and in the skin disease.

6. The use of the galvanic current has been one attended by more than satisfactory results in my hands, and I shall continue to use it in the treatment of vitiligo until I am pretty well satisfied that it is useless. Of course, a few cases cannot determine a therapeutical question; yet, the marked good effects of galvanism, in a few cases, have made me think that the cause of the vitiligo was probably nervous.

7. The nerve alterations found in this disease are marked in some cases. There have been few, if any, investigations, in this direction, and it seemed as if those who were to write upon the subject had agreed to ignore or entirely taboo any possible neurotic origin, and rather ignored this important part of the pathology of the disease.

The few points given above together with a close observance of cases will show that the role of the nervous system in the causation of vitiligo is a considerable one,

and, moreover, that it is more often active than is generally supposed. This is of some importance as it may contribute to an effort on the part of all who see this disease to treat it, and not merely turn away patients with the assurance that nothing can be done for their disease. A new era is dawning upon us. We are learning that, through a better knowledge of etiology and of pathology, a number of diseases, hitherto regarded as incurable, are now entering the domain of the curable. May vitiligo soon be counted with these. At any rate, I would recommend in every case a careful search for a nervous origin and a treatment combining internal nerve tonics with external nerve stimulation, such as the ascending galvanic current, as success or failure will aid, to a great degree, in determining how far the nervous system exerts its influence in vitiligo.

PROCEEDINGS

OF THE

NEW ENGLAND PSYCHOLOGICAL SOCIETY

BOSTON, December 8th, 1885.

The New England Psychological Society met at 3:30 P. M., December 8th, 1885, at the Hotel Brunswick. Owing to the absence of both president and vice-president, Dr. Stearns was called to occupy the chair. Members present: Drs. Stearns, Bancroft, Ira Russell, G. W. Russell, J. P. Brown, Geo. Brown, Nims, Stedman, Sawyer, Twitchell, Channing, Baker, Smith, Moulton, Quimby, Rowe, Cowles, Turnbull, Hall, Benner and Fisher.

The minutes of the last meeting were read and accepted.

Some discussion occurred relating to a change of time and place of meeting suggested at last meeting.

Dr. Twitchell thought the expenses of some distant members being large, it would be well to have a less expensive dinner.

Dr. Stedman suggested meeting at the Medical Library, and having a supper served there.

Dr. Channing said he thought the Venetian magnificence and the private dinner at Brunswick desirable features of the meetings.

Dr. Geo. W. Russell suggested that the society revolve a little, and visit the other Northeastern States occasionally. Don't object to the expense of coming to Boston, but would like the Society to come to Hartford, occasionally. Don't think that the expense of the dinner deters many, as it is a small part of the expense of attending the meetings.

Dr. George Brown suggested that two meetings be held in Boston, and one in some other New England

city. Don't approve of going to the Medical Library, and having a cold supper there. The question of expense is not the most important one. He moved that the secretary be a committee to confer with members, and report on the subject at the next meeting.

Dr. Fisher moved, as an amendment, that a committee of three be appointed by the chair. [Voted.] The Chair appointed Drs. Fisher, Draper and George Brown.

A paper was then read by Dr. Nims, entitled "Observations in English Asylums." [See page 237 of this JOURNAL.]

DISCUSSION.

Dr. Draper said Dr. Nims' paper reviews a recollection of his own experience abroad. At Hanwell he observed that large numbers of patients, who refused food were treated without tube-feeding. Dr. Rayner told him when patients refused food they were put to bed to save their strength, and would usually eat enough to support life, until they became willing to eat, also saw large numbers of paretics kept in bed habitually, as he was told. He was impressed with the idea that general paretics in England were less violent than with us.

Dr. Stedman said English superintendents are replacing their old floors, or flagging, with wood, to remove the prison aspect of the former. The substantial nature of the buildings there interferes with alterations and repairs.

At Morningside he found there were many general paretics belonging to the class who were demented from the beginning of the attack. He thinks cases of neglect among boarded-out patients there, were diminishing. Those he saw at Eastmore were very comfortably situated, had all needed amusement, food and home comforts. Dr. Bancroft thinks the non-restraint emulation among English superintendents is harmful. They sacrifice the welfare of patients, sometimes to a sentiment. Patients and their friends often prefer mechanical restraint. Asks Dr. Nims, if the association of demented and convalescent patients.

in large dining-halls is not depressing. Dr. Nims said that in the large asylums, where he saw the dining halls, there were few bad chronic cases, and the halls were so large that a certain classification was possible.

Dr. Bancroft said he had tried the open-door system in the new buildings for convalescents at Concord. A suicide, which happened to a patient who escaped, made them replace the locks, and put ornamental screens on the upper windows; on the lower floor he had used wire mosquito netting, after Dr. Cowles' plan.

Dr. Geo. Brown thinks the entire disuse of mechanical restraint in England as great an error as its present use in this country. Chemical restraint is equally bad; strong clothing is largely used in England, and is a form of restraint; conscientiously believes restraint a blessing, and a comfort in many cases. In a foreign asylum found six patients in restraint unknown to the superintendent. The nurses said he was "given them a rest."

Dr. Channing said he always had the impression that patients in England were less excited than here, but Dr. Trull, in his recent book, says he was impressed with the quietness of patients in American asylums; has often wondered why we could not understand the open-door system here. It seems it is open-door only in name. If attendants guard the doors it is a misnomer to call it an open-door system. The personal equation largely determined the amount of restraint superintendents would use.

Dr. Cowles said Dr. Blandford told him, that most British superintendents would welcome the privilege of using restraint, undeterred by popular sentiment, when necessary.

It was a mistake in the older hospitals to build them strong enough in all parts for the most violent patients. The open-door system is an extreme step in the other direction.

At Lenzie many of the wards were open; thinks he saw an atmosphere of restraint and discipline substituted for the closed doors there. The matron told his traveling

companion, that each attendant had certain patients whom he was to watch all the time. At the McLean Asylum he expects to have some new buildings with enclosed gardens instead of airing courts, several acres in extent, with trees and a concealed fence, or a ditch and wall, in the French style.

Dr. Quimby thinks the American system in the matter of restraint nearer right than the English system of absolute non-restraint. The chronic insane can be treated with less restraint than the insane generally. Uses no restraint on the male side, and but little on the female side. He has eight wards unlocked, but they are open only to name, certain patients will be stopped if they go out. Airing courts have been given up, and the whole ground used for recreation; there is a fence around it, and one exit only. Thinks large dining-halls suited for the chronic insane, they are economical by food and labor, and going to and from meals makes a pleasant change in the routine. The demented patients get better attention under the eye of supervisors and physicians.

Dr. E. W. Russell thinks well of associated dining-rooms; gets patients out of ruts, and relieves monotony, as going to an out-of-door-chapel does.

Dr. Stearns thought it was hardly fair to our English and Scotch compères to call them dishonest in the use of restraint, his experience was that they are really of opinion that in the vast majority of cases they can do without it better than with it; thinks if public sentiment was as strong here in favor of non-restraint, as in England, we should all be influenced by it; cited the disuse of calomel, as an instance of yielding to popular prejudice. Has had no case at the retreat for months requiring restraint, but would use it to-morrow if needed, instead of rather advocating its use, thinks we should lead to its disuse; thinks unlocked doors more feasible in county asylums. Saw an asylum at the West with 850 patients, nine halls were open, and seven opened directly out of doors. There had been no escape in seven months, and

no attempt. This was no sham, as patients went and came freely. Thinks we should avoid iron-clad rules of any kind.

In the evening Dr. Benner read a paper on "The Relation of Phthisis to Insanity," [See page 256 of this JOURNAL.]

DISCUSSION.

Dr. Draper said it was always desirable to connect insanity with etiological and pathological facts, and in his estimation, hospital experience frequently showed the connection of insanity, with a phthisical constitution.

Dr. Twitchell questioned whether there was a specific form of insanity which could be called phthisical. In the last census report we find: Deaths in the United States, 756,893, i. e. 15.1 to 1,000 inhabitants; deaths in the United States from phthisis, 91,551, i. e. 124.75 to 1,000 inhabitants or $12\frac{1}{2}$ per cent.; deaths in the United States, in 34 asylums, 1,570 patients, 21.732 or 72.2 to 1,000 patients; deaths in the United States, in 34 asylums, from phthisis, 203 or 129.1 to 1,000 patients, or 12.91 per cent., and hence we see that about the same per cent. are of phthisis who are sane and outside asylums, as of the insane who are in asylums. Difficult to say, therefore, that phthisis prevails more among the insane than among the generality of people. It should be borne in mind, however, that there is less restraint to disease among insane people.

Dr. Brown (of Barry), thought among the feeble-minded and imbecile there was a vitiated constitution, and that epilepsy, weak-mindedness and insanity, all belonged essentially to the same kind of disease, only in different stages of development.

Dr. J. P. Brown 'was accustomed to consider phthisis a predisposing cause of insanity, where there was an hereditary taint, but doubtful, whether phthisis, *per se*, is a cause. Deaths from phthisis in lunatic hospitals twenty years ago were undoubtedly more numerous than at present when sanitary conditions are so much better. In

Taunton Hospital: First ten years there were 30 per cent. deaths from phthisis; Second ten years there were 20 per cent. deaths from phthisis, but during the last sixteen years there were only 8 per cent. deaths from phthisis. Evidently at this hospital there has been a gradual diminution of deaths from this cause. He is very doubtful whether there is a phthisical insanity, more than a stomach or an hepatic insanity.

Dr. Parrell (of Hartford) remarked that insanity is not of infrequent occurrence in the phthisical families. Rheumatism and other diseases often develop among constitutions of a weakened type.

Dr. Baker thought it difficult to establish a relation of cause and effect between phthisis and insanity; it seemed to him rather a coincidence happening to occur to gather in persons of low vitality.

Dr. Cowles refers to Dr. Sankey's theory, as possibly explaining the co-existence of insanity with phthisis, or rather the remarkable prevalence of insanity in phthisical families. This theory was that insanity may depend upon conditions of the blood, and also upon vasomotor influences controlling blood supply to the brain. Vitiating states of blood may cause vasomotor contraction of the arteries. This contraction will not only cause a diminished supply of blood to the brain, but it may even go to the degree of producing an undue strain upon the heart.

He claims that heart disease is more common among the insane, than in any other type of disease, and offers the explanation of the fact. Hence, we have a double reason, why insanity is likely to occur among persons of low vitality, viz: there is, first, a poor and debilitated quality of blood flowing to the brain, and second, there is a diminution in the amount of blood actually sent to the brain, by reason of this defective vasomotor influence.

Dr. C. P. Bancroft thought that hospital experience would seem to indicate the remarkable prevalence of insanity, and the various neuroses, such as epilepsy, chorea,

asthma, and also phthisis in the same families. And this would seem to show the common relationship of all diseases of the nervous system, including the higher and lower centres, with states of constitutional weakness, whether of phthisical or other character.

He mentioned in illustration a family originally healthy and long lived, in which syphilis was introduced. For long years, and successive generations, specific degeneration seemed to follow, and finally chorea, epilepsy, phthisis and insanity all appeared to result from successive inroads of disease upon different portions of the nervous system.

Dr. Stearns inclined to think there was a phthisical form of insanity, but that the two diseases did not usually exist together, at the same time and in the same person on the ground that nature rarely supported two diseases in an individual at once. He referred to a case of a patient at the Retreat when admitted he was suspicious, mildly melancholy, thought his food poisoned; he was very poorly nourished, a few months ago began to have a cough; expectorated, he emaciated, and gave marked evidence of lung disease, at same time his mind began to clear. To all appearance he converses as well as anyone could, with intelligence and coherence; his lung disease is evidently pronounced.

Dr. Moulton raised the question whether tonic treatment in all those cases did not help brain irritation, and that the clearing of the mind, during the appearance of phthisis, may be due to the cod liver oil and tonic treatment employed at that time.

Dr. Stearns then appointed Dr. Russell, of Hartford, Dr. Bancroft, of Concord, as readers at next meeting.

Meeting then adjourned to second Tuesday of April next.

SELECTIONS.

NEUROTHERAPY.

THE INFLUENCE OF KAIRIN, THALLIN, HYDROCHINON, RESORCIN, AND ANTIPYRIN ON THE HEART AND BLOOD-VESSELS.—Chemists, for a number of years, have been industriously experimenting, hoping to find a way to produce quinine artificially. The result has been the discovery of a number of substances, some of them belonging to the phenol series of organic compounds, and possessing to an eminent degree the power of reducing hyperpyrexial temperatures. Of these, kairin, thallin, hydrochinon, resorcin, and antipyrin, have all been found to reduce abnormal temperatures to a greater or less degree, in almost all febrile disorders promptly, though perhaps not permanently. An experimental inquiry into the probable relations of these new antipyretics to the circulatory apparatus has been made by Dr. H. G. Beyer, and the results, which he gives in an elaborate article on the subject in the April number of *The American Journal of the Medical Sciences*, justify the attempt to solve the problem.

The experiments have been arranged into two groups: I. Experiments on the work done by the heart when isolated from the central nervous system. II. Experiments on the blood-vessels; on the flow through the vessels of animals the brains and spinal cords of which had been destroyed; on the lingual vessels of curarized frogs. In addition to this, a short account of the influence of these drugs upon the corpuscular elements of the blood and the coagulation of blood is given.

Dr. Beyer's experiments show that kairin reduces temperature, both by diminishing heat production and by increasing heat radiation. The distinctive influence it exerts on the red blood-corpuscles, however, and the weakening effect upon the heart, render its employment objectionable and dangerous.

Thallin, like kairin, reduces temperature by diminishing heat production, and by increasing heat radiation; as an antipyretic it is less dangerous, but no less objection-

able, than kairin, for while its effect upon the ventricle of the heart is less depressing than that of kairin, its influence upon the blood-corpuscles is sufficient to condemn it.

The action of hydrochinon is similar to that of kairin and thallin. Resorin reduces the temperature by increasing heat radiation by the dilatation it produces in the capillaries and veins, especially the latter.

Antipyrin reduces temperature purely by increasing heat radiation, owing to its extensively dilating the veins and capillaries; but what stamps it as an excellent antipyretic is that, besides dilating the veins, it also has a tonic influence on the heart and slightly increases arterial pressure, or, at any rate, does not cause a diminution of the same. It has, moreover, no injurious influence on the blood or the muscular tissues, and strengthens the auricles.

The objection to the employment of kairin and thallin as antipyretics arises from the fact that they cause heart paralysis, especially affecting the auricles, in doses only slightly larger than are sufficient to produce a lowering of the temperature. But this objection becomes an absolute danger when we take into account the destructive influence upon the blood-corpuscles and tissues generally.

Hydrochinon and resorcin, although not exerting the same weakening and directly paralyzing influence upon the ventricle of the heart which is peculiar to kairin and thallin, both paralyze the venous side of the heart, viz., the auricles, and greatly lower the tone of the walls of the veins. The extra amount of blood, therefore, which is driven into the veins through the increased action of the ventricle, is only with great difficulty returned to the ventricle, and here the danger is not so much from failure in the power of the ventricle as in the case of kairin and thallin, as from the danger of *bleeding the animal to death into its owns veins*. The intense visceral and especially pulmonary congestion found post-mortem, by Dujardin-Beaumetz, and others, in animals killed by resorcin, seems to confirm this view of the matter.

Antipyrin, though largely dilating the veins, increases the power of contraction of both auricles and ventricle, and has no injurious influence upon the blood nor the muscular tissues, and therefore possesses, indeed, all the good qualities of a perfect antipyretic.

PSYCHIATRY.

PARANOIA.—The existence of primary insanity, was like the existence of moral insanity, denied by most of the government experts at the Guiteau trial. They had never seen such cases, yet Dr. Nichols at the expert conference recognized them as being, those which Ray, who evidently recognized their teratological nature called "imbecility of the first-class," Dr. Hurd, (Pontiac, Michigan Hospital, for the Insane, 1885 report), shows that these ideas are held by hospital superintendents. He says, the term "dementia monomania" includes a large number of cases in a secondary stage of mental disease. The majority of these persons have passed through its active stages, and regained a degree of physical and mental vigor. Their minds, however, are enfeebled and they retain systematized delusions in a particular direction. A careful study of the cases included under this head shows that all patients suffering from monomaniacal delusions are not necessarily victims of marked dementia. In a few instances at least the dementia does not seem to have developed from a pre-existing attack of mania or melancholia, but to have arisen primarily from the native constitution of the patient's mind and as a diseased development of a neurotic organization. This class of cases has been called by the Germans primary paranoia, a term translated into English "primary monomania." It has heretofore been customary to regard them as victims of secondary dementia, and to suppose that in each instance a preceding attack of mania or of melancholia had been destitute of active symptoms and had not been recognized by the friends. A painstaking analysis, of several cases, classed as dementia monomania, shows that in some the morbid phenomena developed primarily.

He then cites the following case: The patient came from a respectable long-lived stock. Both father and mother were very nervous. The father unsuccessful in business possessed little energy. The mother active and energetic, had little endurance, and died at sixty years of age, from apoplexy. The patient was active, energetic and capable, but always peculiar. Her married life was unhappy, and she was twice divorced at intervals of many years. Always jealous and irritable, but a conscientious worker, a fond mother and a devoted wife. At the climacteric, when much reduced in health, she suddenly

developed a delusion that she was watched and followed by suspicious persons. She first noticed these suspicious personages while waiting in a railway station and perceived that they cast meaning glances at her. After she returned home she saw the same persons loitering about the little village where she lived. To ascertain their intentions, she planned a journey to an adjoining town where she formerly lived. There she saw the same mischievous characters dogging her footsteps from house to house. Becoming alarmed, she telegraphed for her son to accompany her home because she feared to undertake the journey alone. When she again reached home she was still annoyed by the attentions of the same persons, and developed the additional delusion that they were scattering powder about the streets to blow her up. Becoming wakeful, restless and loquacious, it was necessary to place her in the Asylum. After her restlessness and excitement had been allayed by the regularity of asylum life, she developed a delusion that she was the daughter of a wealthy New York merchant, and ingeniously constructed a theory to account for her apparent neglect by her father. She believed that her mother had been secretly married to this gentleman previous to her marriage to her reputed husband. The marriage, however, had been concealed for family reasons and she had been brought up as the apparent daughter of a man whose name she bore. She accounted for her not being molested by any person until late in life by the declaration that there was no motive for destroying her until after the death of her true parent. Her rightful claims to his large property rendered her a dangerous person who must be put out of the way and she had been followed about and persecuted in consequence. During several years of asylum treatment she was restless, wakeful at night, apprehensive and much distressed but never maniacal nor depressed. After a time she developed strong religious delusions. She fancied herself about to become the mother of another Saviour. She had great distress of mind and extreme unwillingness to accept the responsibility thus thrust upon her and spent her days in reading the Scriptures and her nights at prayer. She had trance states during which she saw her physician, the Saviour and other important personages and received divine messages. She had at times active delusions of persecution, suspected poison in her food, perceived

noxious vapors in her room and thought herself surrounded by enemies who were determined to take her life previous to the birth of her child. After several months she learned in a vision that her child had been miraculously born without her knowledge, and that she was henceforth to occupy a high position. From this time her delusions of persecution ceased to distress her and she became cheerful and hopeful. She spends much of her time in reading and writing. She displays a pleasant interest in her associates, is kind to her children and grandchildren. Her letters and conversation are coherent, pleasant and natural. When questioned about her delusions she asserts calmly without trace of excitement, her divine character and proclaims her divine mission. The tumults, anxiety, and distress of mind which accompanied the stage of transformation have passed away, and she now bids fair to live a quiet, peaceful, and uneventful life the remainder of her days.

CONTRIBUTION TO THE STUDY OF MORPHIOMANIA.—Dr. Marandon de Montyel summarizes the results of his investigations of the production of morphiomania as follows:

I. Morphiomania has its origin either in a demand for intellectual excitation and psychical pleasure, or in the acquired habit.

II. Injections of morphia have as a result a double action: a benign and a special action upon the nervous system by which its natural function becomes impossible after a certain term without the assistance of the poison. These two effects are separate and distinct from each other: the second is manifested when the first is no longer exhibited. There are, then, two kinds of morphiomanias; the one resulting in a temporary good effect, the other a vital necessity; and after a variable period the cases of the first order pass over into the second.

III. This double action of morphia upon the nervous system renders it an extremely dangerous medicament, and it therefore should not be prescribed hypodermically except in cases of absolute necessity.

IV. It is also extremely dangerous to combat morphiomania by the substitution of alcoholics, inasmuch as chronic alcoholic insanity may result therefrom.

V. Morphiomania may always be treated by abrupt withdrawal of the drug, except in conditions when such methods are contraindicated by the vital forces of the

patient or concomitant pathological phenomena. The method should also be abandoned if reactionary collapse result.

VI. In the treatment of morphiomania by gradual suppression of the drug, it appears advantageous to combine with the progressive diminution of the dose the recoil of momentum by fusing two injections into one.

VII. The medico-legal questions pertaining to morphiomania are certainly based more upon extra judicial than upon judicial clinical observation.

VIII. Observation shows that a morphiomaniac may have great energy of will while the poison has not yet determined any disorder of intellect. There is here a serious proof of what has already been said, that responsibility only ceases with the period of psycho-physical marasmus.

IX. Relative to the responsibility of morphiomaniacs who commit crimes or offences to satisfy their passion, it is, perhaps, necessary to distinguish whether they have yielded to the simple appetite for a pleasant effect, or to a physical necessity dependent upon the instinct of self-preservation. A conclusion of irresponsibility in the latter case seems justified.

X. In the exact appreciation of the intellectual troubles caused by the abuse of the hypodermic injection of morphia, it is important correctly to appreciate the existence of predisposition to insanity, and the delirium produced concurrently by the absorption of other substances, such as alcohol and belladonna.

XI. It is necessary to retard the continual progress of morphiomania by disseminating general information in the upper ranks of society concerning the deplorable and certain evil effects following the use of the drug, and to exercise an active surveillance over pharmacists, and impose special penalties upon those who dispense morphia without a physician's prescription.—*L'Encephale*.

INSANITY FOLLOWING GUNSHOT INJURY TO THE HEAD; CEREBRAL CYST; ASPIRATION; RECOVERY.—Dr. Carlos F. MacDonald records, in the April number of *The American Journal of the Medical Sciences*, this case, which is of particular interest, for the following reasons:

1. A lesion located anteriorly to that portion of the first frontal gyrus included in the centre marked 12 by Ferrier, and which is now regarded as the anterior

boundary of the motor area giving rise to psychic derangement, and unaccompanied by motor or sensory disturbance, furnishes affirmative evidence, both positive and negative, of the correctness of the view held by a majority of modern neuro-physiologists, namely, that the motor and sensory areas of the cerebral cortex are not located in that portion of the brain lying anterior to the coronal suture.

2. That when not in a state of inflammation, the brain substance may be punctured with a fine, clean needle, with comparative immunity from danger or disturbance of function.

3. The certainty that recovery in this case was directly due to the operation.

4. Cases of insanity dependent upon injury to the head, and accompanied, as they usually are, by mental irritability and explosions of temper, are, as a rule, so seldom benefited by drugs or the so-called moral treatment, that they have come to be regarded as incurable from the beginning. That the prognosis is bad in a considerable proportion of cases of traumatic insanity must be conceded; but it is equally true that a certain limited number may be cured, or, at least, greatly improved by timely surgical interference. Obviously the cases which are most likely to be benefited by operative procedure are those of which the one reported is a type—that is, cases with depression of the skull, in which the location of the brain lesion can be determined with a reasonable degree of accuracy, the site of the lesion being such as to render the use of the trephine anatomically admissible.

By reason of the numerous and valuable contributions which have recently been made to our knowledge of neuro-physiology and the localization of cerebral disease, the practice of trephining for the relief of epilepsy resulting from injury to the head has been revived, and it would seem to be not unreasonable to maintain that the arguments advanced in favor of the operation for epilepsy would apply with even greater force to cases of lunacy depending upon similar causes.

AUDITORY HALLUCINATIONS IN A DEAF MUTE.—Dr. H. P. Stearns (Report of the *Hartford Retreat*, April, 1885), reports the case of a deaf mute lady who lost her hearing from scarlet fever when a child, and, in consequence, her speech. She was educated in the sign language, and

her mind became very quick and active. She read books and magazines with eagerness; conversed in the sign language with ease, and was a great favorite among her friends. When forty years old she suddenly without assignable cause became despondent, indisposed to talk and manifested symptoms of *folie circulaire*. The interesting point is that she should, after so many years, during which she has been buried from all sound of the external world, be so greatly annoyed by auditory hallucinations. These are generally caused by irritations in some manner, of the auditory nerve within the brain, or of a portion of the optic thalamus. These impressions are conveyed to the ego, and cause such sensations as ordinarily arise from vibrations of the atmosphere upon the tympanum. These sounds are interpreted by the ego usually as voices of persons, probably because it is accustomed more often to hear the human voice than other sounds, especially when at home or in the presence of others. But why it should be so in this case is difficult to explain. The auditory nerve has been in a dormant condition more than thirty-five years. So long a period of inactivity it seem should destroy its functional activity. This, however, has not been the case in this instance, but, on the contrary, it appears to be very active. At times when reclining with her eyes closed, she will start up, across the room, and reply to some imaginary voice. She will then place her finger upon her ear, to show that she hears, and then, after listening, reply again, thus continuing an imaginary conversation for some time. She evidently regards this hearing with great surprise, but appears to be unable to understand that it is not real. It would seem that there still slumbered in the personality a remembrance of the voices of childhood, and when the requisite conditions of the tissues of the auditory nerve are excited, the voices which she was accustomed to hear so many years ago, come reverberating back again. She becomes excited, sometimes pleased, but more often distressed; wonders, grieves, until the system becomes profoundly affected. It should be remembered that hallucinations are usually of cortical, not peripheral origin, and the disease invading the centres of registration cause them.

CARDIAC DISEASE AMONG THE INSANE.—Dr. T. Duncan Greenless (*Journal of Mental Science*, October, 1885), concludes: First: That heart disease occurs with greater

frequency among the insane than among the sane. Second: That this increase in frequency is in part regulated by the frequency of heart disease among the sane population in the vicinity of the asylum where the observations are made. Third: That heart disease is more frequent among the insane in counties where the ratio of the insane to the sane is greatest. Fourth: That the distribution of heart disease among the sane is regulated by the geographical position, dietetic and other influences acting as predisposing causes. Similar conditions appear to exercise an influence over the frequency of heart disease in the insane. Fifth: That the numerical difference between heart disease in the sane and insane is not great, being 8.72 per cent. of the total deaths in the former and 9.36 per cent. in the latter. Sixth: That according to his observations heart disease is present in 12.94 per cent. of the living insane and is the cause of death in 13.51 per cent. Both on admission and at death the age of the greatest number, who had heart disease, was between sixty and seventy years. Seventh: That the clinical symptoms of mitral regurgitation in the living insane and mitral disease with left sided hypertrophy post-mortem are the most common affections. Eighth: That the hearts of the insane are heavier than those of the sane and this condition is more especially noted in paretic dementia where the heart is very frequently hypertrophied. Ninth: In many of the insane the general circulation is sluggish and the extremities are cold, livid or even swollen. This condition occurs most frequently in chronic, or advanced cases of insanity. Tenth: That the arteries are very frequently in the insane, but arterial atheroma does not occur earlier than among the sane. In paretic dementia atheroma is independent of the age of the patient, and appears to be influenced by the duration of the disease. Eleventh: That among the sane heart disease appears to exercise an important influence on the mind, and this mental change may reach insanity. Twelfth: Not only does heart disease alter the type, and delusions of insanity, but cases appear in which cardiac disease seems to be the predisposing cause of the insanity.

THE MENTAL SYMPTOMS OF AORTIC REGURGITATION.—
Dr. Douty contributes (in the *Lancet*) a few notes with regard to the relations between heart lesions and certain

forms of insanity. The author records fourteen cases met with in the Worcester Asylum, in which there was incompetence of the aortic valves. Of these eleven were cases of mania, seven possessed very marked auditory and visual hallucinations; and from the author's observations he thinks it probable that, when fuller statistics are collected upon this subject, we shall arrive at the conclusion that the typical mental symptom of aortic regurgitation is a delusional mania, coupled with a condition of extreme instability of temperament. As surely as one discovers an aortic regurgitant bruit, almost so surely is one told by the attendant that the patient has an obstinate and irritable temper. Another very common accompaniment of this valvular lesion is the prevalence of hallucinations. Out of the fourteen cases recorded not one recovered. Rest may cause improvement for a time, but relapses always occur, and the patients never fully recover.
—*Cincinnati Lancet and Clinic.*

COLD BANDAGING OF THE LEG IN INSOMNIA.—Dr. von Gellhorn has found the following plan very useful in inducing sleep in persons who suffer from insomnia. A piece of calico, about eighteen inches wide and two and three-quarter yards long is rolled up like a bandage, and a third of it wrung out in cold water. The leg is then bandaged with this, the wet portion being carefully covered by several layers of the dry part, as well as by a layer of gutta-percha tissue, and a stocking drawn on over the whole. This causes dilatation of the vessels of the leg, thus diminishing the blood in the head and producing sleep. It has been found by Winternitz that the temperature in the internal auditory meatus begins to fall a quarter of an hour after the application of the bandage, and the normal is again reached for from one and a half to two hours afterward. Gellhorn has employed this means of procuring sleep for several years, and finds it especially useful in cases where there is congestion of the cerebral vessels.—*New York Medical Record.*

EDITORIAL.

[*The Editor is Responsible for all Unsigned Editorial Matter.*]

The Malarial Epileptoid Nature of Narcolepsia.—When we have encountered that form of neurosis described by Gilleneau as *very rare*, and characterized by “an insurmountable desire to sleep, of sudden accession, brief duration and recurrent,” referred to by Dr. Cosse as “a passive serous meningeal congestion,” we have always suspected malarial poisoning and a damaged cerebral vasomotor system, and have generally succeeded in eradicating the disease by a persistent course of large doses (twelve grains) of quinine, sulphate or bisulphate, four times a day, arsenic and the bromides and iodides of potassium with, sometimes, the aid of cephalic galvanisms. Malaria is as much a proteus as the many phases of syphilis and its ultimate effects are equally as varied and remote from the incipient symptoms, and, like the latter, its beginning effects on the organism may be equally as obscure.

Patients who live in malarious districts, or who have even but once in their lives been perceptibly effected with malaria, do often suffer cerebral hyperæmias and meningeal congestions as a remote consequence. Many grave brain diseases, which have been sent to us from malarious districts, after having resisted the home treatment, have in addition to the symptomatic treatment given them by us, received quinine and arsenic before satisfactory impression could be made on them.

The analogue of Dr. Gilleneau's patient who fell asleep many times during his dinner, letting knife and fork fall, and breaking conversation off in the middle of a sentence, has more than once come under our observation, at a period so far remote from the time when the patient either had malarial chill or fever, that he either had no remembrance of it or did not think the fact worthy of note as a probable causative influence. It may be because we have regarded this phenomena as a sequel of malarial poisoning, that we have not hitherto noted this case as remarkably peculiar. Physicians of the Mississippi Valley and other southern river bottom lands are probably familiar with

similar cases, and yet have not deemed them worthy of detail as something entitled to especial note.

It is just as great a mistake to look for uniformity of symptoms—even such as periodicity in the remote effects of malarial damage to the nervous system—as it is to expect the cerebro-spinal effects of syphilis to always come under the stereotyped description of the venereal disease. The most of these cases are entitled to be called malarial narcolepsy. Occasionally the suspicion of epileptoid has been excited, and sometimes confirmed, by the sequelæ of treatment, just as the reasonable supposition of malaria, as the prime cause, has been confirmed in most of the cases by the course of medication pursued.

This is the only way in which we can reach an approximately correct comprehension of the probable nature of some other obscurely defined morbid states, like the late and more latent manifestations of syphilis, for example. The most varied kinds of treatment in Dr. Gilleneau's cases gave no good results. Perhaps, we may never have encountered the same kind of cases, because we have not seen precisely the same result.

We have seen a case with the same symptoms in a victim of the combined empoisonment of malarial and venereal virus, in which the epileptoid phaze was probably of adneurial origin, recover under mercury and quinine, arsenic and iodides of potassium. The iodides and cerebral galvanization are valuable in other than syphilitic brain disease and should not be omitted in narcoleptic forms of malarial poisoning if prompt and adequate improvement does not follow the uncombined quinine treatment. Galvanism to the head and systemic static electrizations are especially valuable to promote medicinal appropriation and assimilation by the prostrate organism. In the consideration of this, as of many other ultimate morbid states caused by malarial toxhæmia, it is well to remember that periodicity need not be looked for.

Periodicity is not at all essential to gangliopathic and morbid vasomotor states remotely caused by malaria. Its sequelæ persist long after the physiological reaction in the nervous system to the early presence of malarial poison has ceased to be displayed. The malarial alimentary fluxes, cardiac gangliopathic disturbances and pneumonias are illustrative, and we have seen ataxic and other paralytic symptoms disappear under anti-malarial treatment. The remote morbid influences of malaria on the

nervous system vary from the initial effects as much as those of syphilis, and like those of the venereal disease, the final effects are often gravest when the initial influence least attracts our attention in its usual forms of symptomatic manifestation.

Dr. E. C. Seguin (*Journal of Nervous and Mental Disease*, July, 1882), reported a case of this disease which he found in a negro and which, we believe, was purely of malarial origin; the malarial toxæmia expending itself mainly upon the cerebral vasomotor system.

Drs. Scott and Capener, of Cleveland, Ohio, reported in 1883, in *Gaillard's Medical Journal* the case of a young white man, who for three years had exhibited a tendency to sleep for seventy-five hours. On one occasion lightning struck the house, and though it shattered the chimney and made much commotion, it did not disturb the sleeper. Drs. Scott and Capener have tried on such occasions to rouse him by an application of leeches and other means, but without success. He does not feel any unusual sensation before or after one of these sleeping spells, but gets up and goes to his work.

Dr. R. H. Porter, Louisville, Ky., has recently observed a case of what he denominates narcolepsy. The symptoms described developed in a child four years old after an attack of typhoid fever. The first indication of the trouble was the restlessness of the child, who would often have "nodding spells." These attacks of sleep gradually increased in severity and frequency until she used to have at least twenty a day, and often as many as five or six at the table while eating. They lasted only for about a minute, but they were very profound and it was impossible to awaken her until they passed away. On recovery the child would immediately resume whatever she had been doing, perfectly innocent of the intermission which had taken place. When the attacks would come on she would fall forward on her face, and a large tumor was produced on her forehead from the frequent contusions. A few months ago she began to have spasms in addition to the symptoms described, and became very destructive, having a desire to kill everything she came in contact with, and it required great care to restrain her.

Dr. J. G. Kiernan, of Chicago, commenting on this case justly says: "It will be obvious that the case is one of petit mal only. Latterly, the grand mal and epileptic

mental symptoms have evidently developed. Under treatment the patient is said to have recovered."

M. Ballet in the *Review de Medicine*, about the time that Gilleneau announced his discovery of narcolepsy, as he terms it, pronounced this disease only a cerebral symptom. We think it is but a symptom of malarial toxhæmia in an nervous organism possessed of epileptic instability, either developed by the malaria itself or hereditary. It is not materially different from the sleeping disease of Africa, which is, we think, beyond all doubt, due to malarial damage done to the brain or cerebro-spinal system, and which is ushered in by a chill and headache. The patient loses his spirits, is disinclined to do anything, has a staggering gait, suffused eyes, and dilated pupils. The patient may remain in this condition for from two months to a year before decided somnific symptoms present themselves. When this stage is reached, the patient does little else but sleep and eat. Appetite, even at the best, is remarkable. As soon as the patient has finished his meal, he immediately retires until the next is ready. During sleep the pupils are normal, as are also the pulse, temperature and respiration. The duration of this stage is said to be about two months, at the end of which time the patient quietly dies, without convulsions or any other prominent symptom.

This appears to us like nothing else than profound malarial toxhæmia, unmodified by medication in an acclimated person so gradually inured to ordinary quantities of the poison that the ordinary reactionary phenomena of fever and sweating do not finally appear, and a kind of tolerance has been so established that a vasomotor paralysis finally occurs and the victim falls into a morbid and, finally, fatal sleep. The term narcolepsy is a good enough designation if we do not regard it as a morbid entity of distinctive causation from malarial toxhæmia, but until more and brighter light shall have been thrown upon this new disease by M. Gilleneau and those who may accept the new disease, we prefer to regard it in the light in which similar, if not the same morbid conditions, have appeared under our own home observation, viz., as malarial epileptoid toxhæmia.

The Laparotomy Epidemic—Under this caption Dr. James M. Bennett in the *London Medical Press* discusses this subject as follows, reiterating the cautions and conclusions of the ALIENIST AND NEUROLOGIST, with reference

to Battey's operation, expressed in these pages a good while ago:

No more momentous question has been ventilated in our profession, nor one requiring greater coolness and decision in its treatment, than the justification or otherwise of those engaged in wholesale spaying, which seems, rightly or wrongly, to have become the fashionable craze of certain gynecologists. Other language I fail to find which can adequately describe the position assumed by Battey's ardent disciples. We hear of Dr. Imlach opening his paper upon pyosalpinx with the remark "that every Monday, at 2 o'clock, I see out-patients at the Hospital for Women. If, unable to attend, I were to tell the nurse to send into the hospital those women who suffered most and had been longest ill, out of ten sent in, seven or eight would have some chronic inflammatory disease of the uterine appendages, and most of them would prove incurable without surgical treatment." And further on: "I have removed the uterine appendages, 12½ times," all of which he considered in a diseased condition. On the other hand, we hear an authority like Dr. Grimsdale declare that the ovaries which he saw on one occasion removed by Dr. Imlach were perfectly healthy, and this was, I understood, the only time that he (the consultant of the institution) got the chance of being present. We also had the evidence of Dr. Alexander, who declared that, out of the large number of the post-mortems which he made at the Liverpool Workhouse, he very rarely found traces of this disease, although he had paid particular attention to the examination of the uterine appendages. Under these circumstances does it not seem time to do something to stay the destroyer's hand, as even the removal of one set of healthy parts would, in the minds of honest men, counterbalance all the supposed good of the remaining *one hundred and twenty-five* operations, at which neither Dr. Grimsdale nor any other man of equal erudition was present; had they been, possibly a few more healthy organs might have been discovered. Poor Baker-Brown in his day was quite as eminent a man as either of the gentleman referred to; but, alas! he fell for performing an operation trivial in its consequences compared to spaying. Dr. Tait and Dr. Imlach have attempted to draw conclusions from the results of their practice by comparison with those of two general hospitals; was this fair or generous on their part? I think not, as, I believe, at the Thornton Ward diseased organs alone are interfered with; whereas, if I may again quote Dr. Grimsdale, healthy ones have (at least once) been removed in Shaw Street, so that if the same difference of practice exists in Birmingham, it may somewhat account for the disparity of death-rate, operative measures upon diseased subjects being necessarily more fatal than those performed upon perfectly healthy ones. If we dare make use of the analogy of the sow-gelder, he seldom loses a healthy pig, but has large mortality among diseased ones. The matter up to this has been misunderstood by the laity, but let it once become public that women are being unsexed (castrated) in batches, such as described by Dr. Imlach, and the exit of its authors (in this country) from the

scene will, I think, be as rapid and decisive as was that of the *clitoridectomist*. Before it is too late let them adopt the motto, if they may so apply it, *Appetitus rationi pareats*.

This operative procedure, like many others of surgical gynecology, undoubtedly has its time and place in successful therapy, but it is not an operation for the rash novice with the knife, however skillful. It is an operation easier done than judiciously decided upon and its untimely and unwise performance, too oft repeated, may bring upon it as Dr. Bennett justly says, the disrepute that befell clitoridectomy and a reproach upon gynecology whose junior votaries, especially, ambitious of premature fame have done some rather reckless cutting. While laparotomy undoubtedly belongs to the province of the gynecological surgeon, the decision as to the prosperity of its performance often belongs to the mature minded and large experienced alienist and neurologist. Surgery wins her real laurels through remedial triumphs which are the last and best resort of therapy and the true glory of surgical gynecology, and her lasting fame rest upon a broadly enlightened conservatism, and her laurels will brighten or fade according as she cuts to cures or to count surgical conquests with the knife only. The number of ovaries or other uterine appendages cut away, with the result of the patient surviving the operation with a measurably fair degree of health, is not the thing to record with self-laudation, but the procedure to be applauded is that operation which cures when medicine has failed. Many especially of the younger gynecologists have evidently to learn the difference between hyperæsthetic and consequent painful tenderness and remediable vasomotor congestion and inflammation.

It is absurd to say in the light of a truly wide clinical experience, as Dr. Imlach is reported to have said: "that out of ten women, out patients who suffered most and had been longest ill, seven or eight would have some chronic inflammatory disease of the uterine appendages, most of which would prove incurable without surgical treatment." We have seen these cases too often recover under a different plan of treatment after the *dernier* gynecological *resorte* has been declined by the patient and she has sought and found relief in other than gynecological hands. Gynecology must learn that the ailments of women are largely neural as well as gynesic, and should try the potent therapy of rest from home and household, and a restor-

ative and tranquilizing course of treatment addressed to the central and ganglionic nervous system more and the knife less. The most judicious of gynecologists have learned already this secret in the successful treatment of women. The time will come when gynecology, as practiced by her wisest followers, will be largely neurological, in fact, when gynecology, except in its more judiciously defined surgical aspects, will be a department of neurological medicine, or else gynecologists will loose their prestige and monopoly of the management of female disease, for, despite the present teaching, woman in her diseases, generally, is more a disordered neural than uterine mechanism, dis severed from its neural connections and influences.

But there is another view of this subject which had not occurred to us, until we saw it so convincingly present in that able journal, *The New York Medical Record*. As we desire to be fair, we give it to our readers in the *Record's* own language:

THE USEFULNESS OF SPAYING.

The attempt of the New York Academy of Medicine to check the practice of spaying is evidently an ill-considered one, and is entirely antagonistic to the progressive instincts of the day. The history of the world shows that the practice in question has always been one of the crowning ornaments of the best types of civilization, from the Chaldean to the Roman age. Now that, after many centuries of gloom, it is again brought into beneficent existence, its critics should beware of thoughtless and shallow opposition. The trouble probably lies in the fact that there still lingers an impression among crudely educated minds that the ovaries are organs of social necessity and economic importance. This, however, is a serious mistake. These organs are, it is true, useful for a short period in the existence of a portion of womankind for the perfunctory propagation of the race. Aside from this, however, they are not only of no service, but are a source of racial, domestic, and individual distresses of the greatest magnitude. Philosophers of the present day have ascertained several facts which place this view upon a solid and impregnable basis. No woman wants more than two children, many only one, and a large per cent., including all the unmarried, not any at all. But in fact the population is increasing at a seriously rapid rate, and the modern economist has had to revive and readopt the views of Malthus. In this exigency, when society's needs are antagonized by infant multiplicity, the laparotomist steps in, as a kind of modern saviour from the threatened polypædic catastrophe. The woman has her child, the ovary swells, the learned touch of the gynecologist detects a pyosalpinx, and in a twinkling out comes all the source of woman's labors and man's unsought paternities. The laparotomist is

plainly society's best friend. Like all benefactors of the race, he must endure opposition and calumny for a time; but his noble work of radically removing the sources of over-population will go on, and we calculate that, at the present rate of increase, in fifty years some thirty-five per cent. of women will be permanently relieved of all the worry of maternal anticipation."

The Neurological Review.—The prospectus of a new monthly Medical Journal bearing this caption comes to us from Chicago, by which we note that Dr. J. S. Jewell, who founded and for eight years conducted the *Journal of Mental and Nervous Diseases*, as editor-in-chief, returns to the editorial fold. We cordially welcome the new journal and the old editor to a place with us in the corps editorial. The new journal will be published by Rand, McNally & Co., of Chicago. Dr. H. M. Bannister, chief assistant physician of the Eastern Asylum for the Insane, at Kankakee, Ills., and who was associated with Dr. Jewell in the conduct of the *Journal of Nervous and Mental Disease* will also give active editorial support to the *Neurological Review*. If the new journal does not fill a long felt want it will certainly supply a present neurological need, and therefore we hail its advent with pleasure.

The editor thus justifies the new journalistic venture:

"In the rapid progress of events, in medicine as well as in other fields of labor, new observations and discoveries, and changes in opinion, arise in such rapid succession as to make it necessary for published records of the same to appear often, so as to chronicle and estimate events, when possible, as they are passing, rather than long after they have passed by. It seemed almost necessary to approximate, in neurological journalism, as far as practicable, the modes of working of the best issues of the weekly and monthly press in the wider fields of general science and of literature."

Terms of subscription: *Three Dollars a year*. For the year 1886 the subscription rate will be *Two Dollars*.

Delegates to the American Medical Association.—

The rates given to the Delegates to the American Medical Association meeting May 4, in St. Louis, have been fixed by the different Railroad Committees of the country, at one and one-third fares for the round trip. Delegates must pay full fare coming, and will receive on application, from the agent at starting point, a certificate, which when signed by the Chairman of the Local Committee of Arrangements will entitle them to the reduced return rate.

No reduced return ticket will be issued unless the purchaser can show a certificate issued by the agent from whom he purchased the

going ticket, and signed by the Chairman of the Committee of Arrangements.

LE GRAND ATWOOD,

Chairman Committee of Arrangements.

The Death of Dr. Abram Marvin Shew is a sad loss to the profession and to alienism. His state, his hospital, and all who knew him or felt the beneficent influence of his ministering hand, will miss him. His death took place on the 12th of April, at his hospital, at Middletown, Connecticut. He died in the prime of life, at the age of forty-four years, though the professional work he had done and the general and special clinical experience he had acquired in his profession was equal to that of many older men in medicine. Dr. Shew's native city was Watertown, New York. He was a graduate of Jefferson Medical College. His first service was in the Blackley Alms-House, Philadelphia. Subsequently he was appointed Assistant Physician to the New Jersey State Lunatic Asylum, under the veteran, Dr. H. A. Buttolph. About 1868 he was appointed Superintendent of the Connecticut Hospital for the Insane, a position he filled with distinction to the time of his death. He was a leading member of the New England Psychological Society, American Medical Association, of the Connecticut Medical Society, of the Middlesex County Medical Society, and of the Association of Medical Superintendents of American Institutions for the Insane. As an alienist and as a man he was highly esteemed.

To the Delegates to the Missouri State Medical Association.—The Committee of arrangements take pleasure in announcing that the arrangements for the National Association apply to them likewise, from and to any point in the State of Missouri, to May 8th prox. For further information apply to C. H. Hughes, M. D., Chairman Committee of Arrangements State Medical Association.

The American Medical Editors meet at St. Louis at the same time as the American Medical Association. The latter will be banqueted at St. Louis Club by the Medical Press and Library Association of St. Louis.

The American Medical Association will meet in Exposition Building (large hall) on May 4th prox. "Let us have peace" and give the International Congress a warm welcome in 1887.

The State Medical Association will meet in small hall, "Entertainment Hall," of Exposition Building, May 3d prox.

Greeting to the American Medical, State Medical and Medical Press Associations.—This JOURNAL as cordially greets you, gentlemen, as the profession and people of St. Louis heartily welcome you. We greet and welcome you as members of the noblest of professions and representatives, in the aggregate, of the highest type of humanity. Your trained minds and hearts and hands make in you and your Association a trinity of benefactions, which it were blindness, indeed, not to see and heartless not to feel and appreciate.

The press has been called the "Art Conservative of Art," but Medicine is supremely the art conservative of the life and health, which saves to the master-hand in art its cunning, and to the head its directing power. The profession of St. Louis welcomes you because it knows your worth, your true devotion to science, and the benefit you have conferred upon mankind. The people of St. Louis likewise welcome you, and because in so many instances they have personally received the benefits of your skill. You would be welcome in any community that appreciates the hygienic gifts you have bestowed on humanity, and which makes life more liveable and health more secure.

The pestilences of the past that have been conquered by your skill and destroy no more, and those of the present, that have been robbed of half their terrors by your researches, from the nervous epidemics of the fifteenth century, which Paracelsus contributed so much to subdue, the small-pox scourge which Jenner later mastered, and the devastating diseases which Koch and Pasteur are contributing so much to disarm of their terrors, all attest your grand conquests and noble work, and have earned for you an intelligent people's plaudits and gratitude, and make you welcome wherever, among enlightened communities, you may choose to meet for annual deliberation. The pain which vanishes, the diseases and deformities which disappear at your skillful touch, make you the especial friend of mankind everywhere, and cause every warm heart, sensible of your benefactions, to welcome you and hospitable hands to greet you. From you, gentlemen, the world has learned how to ventilate its houses, and drain its cities, and of the life and health-giving power that is in the sun. From you it has learned of the circuit of the blood through the body, the function and location of the arteries and how to staunch their wounds and save the blood of the

body which is its life. From you it has learned of all the finer mechanisms of the nervous system and of their relations to the physical and mental movements of the organism. From you it got the precious gift of anæsthesia and the nepenthes and hypnotics which, under your skillful hands, bring rest and peace to bodies and minds distracted with physical and psychical torture. Your life study is to secure the health of the human race, and you have done more to secure its happiness than any other body of men. Your organization is no combined monopoly of selfish interests. You have never put your hand upon your fellow-man—save in kindness. Whenever you are called upon to wound with the surgeon's art, it is only to relieve or cure through that kind of knowledge which the great Vesalius braved the contumely of a frowning world to acquire, and the added skill which subsequent self-sacrificing devotion in the dissecting-room has perfected.

Gentlemen, you are the men who assuage the wounds of life's battle, who repair the consequences of men's errors and follies, correct mistakes that would lead them to death, warn them against and ward off from them physical ills far more than they know. You have taken the chained lunatic by the hand, and, wherever practicable, unshackled him. When others called him fiend you have called him friend and brother, and sought to cure him of his pitiable disease. When others consigned him, as an enemy of man, to a dungeon's filth and chains and rags, you brought him into the light of day, and clothed and cleansed him, and made his pitiable life less miserable. You have sought out with the microscope and found and destroyed the infinitesimal foes that infest the pathway of man's happiness, and which, but for your unselfish and often personally perilous researches, would to-day continue their destructive inroads upon health, undetected and unsuspected.

The baccillus of phthisis and cholera, and the subtle ways of syphilis have been found out by your researches, and the fatal laws of neural heredity! How much have these discoveries saved to the race? And no patent protection covers your discoveries. They are given to the world as freely as those of astronomy. Diligently you have studied and worked for the welfare of mankind, and with more light than falls upon other callings as to the nature of man and the ills that beset him. Your work has always been in the spirit of true charity. "Whatsoever ye would that

others should do unto you, you have done even so to them." More, nearly than any other body of men you have followed the precept of the great Physician. Why should you not be welcome among us?

The Beaumont Hospital Medical College.—

A new hospital and college association has been incorporated, which bears the name of this distinguished Saint Louis *savant*, who, in his day, was one of the most reputable and distinguished of physicians, and made for all time an ineffaceable mark on the physiology of digestion. We have reason to feel assured, from what we know of the founders of the new college, that the institution will never dishonor the distinguished name it bears.

Subscription Agencies.—Please take notice that this JOURNAL does not allow discount to agents on renewal of its regular subscribers, *but only on subscriptions secured* by agencies and on renewals of subscriptions secured by agents.

IN MEMORIAM.

AUSTIN FLINT, M. D., LL. D.—Professor Austin Flint died of cerebral apoplexy, at his home in New York City, on the 13th instant. He had attended a meeting of the Faculty of Bellevue Medical College on the preceding afternoon, and appeared, on his return to his home, to be in his usual health, though fatigued by the duties of the day. At midnight a few moments after he had gone to his room, a cry was heard, and he was found lying across his bed unconscious, and in this condition he remained until his death, which occurred at 2 P. M. on Saturday.

Professor Flint came of a medical line, his father, grandfather, and great-grandfather having been physicians of distinction in their day. He was born at Petersham, Massachusetts, on October 20, 1812. His Collegiate studies at Amherst and Harvard were followed by a full course in the Medical Department of Harvard, from which he was graduated in 1833. From the beginning of his career he made himself known both by his success as a practitioner and by his contributions to medical periodicals. The first three years of his professional life were passed at Northampton and Boston. In 1836 he went to Buffalo, where he remained until 1844, his prominence at that time securing him a call to the chair of Institutes and Practice of Medicine in the Rush Medical College, Chicago. At the close of the year he return to Buffalo, where he established the *Buffalo Medical Journal* in 1846, which he conducted for ten years. Meanwhile he was increasing his usefulness in various directions. He was one of the three founders, in 1847, of the Buffalo Medical College, in which until 1852 he occupied the chair of Practice of Medicine and Clinical Medicine. Then he went to the University of Louisville, where he remained as Professor of Theory and Practice until 1856, when he went back to Buffalo as Professor of Pathology and Clinicial Medicine. While still holding a residence at Buffalo, he passed the winters of 1858, 1859, and 1860 in New Orleans, where he was Professor of Clinical Medicine in the Medical School, and was also Visiting Physician to the Charity Hospitals. He changed his home towards the close of this period to New York, which he made his permanent residence afterwards. In 1861 he became one of the physicians to Bellevue Hospital and was appointed to two professorships,—of the Principle and Practice of Medicine and Clinical Medicine in Bellevue Hospital Medical College, and of Pathology and Practical Medicine in the Long Island College Hospital. He remained with the Bellevue faculty, but his duties forced him to sever his connection with the Brooklyn College in 1868. As an author and successful teacher, Dr. Flint did much for the profession. His "Treatise Upon the Principle and Practice of Medicine," published in 1866, has gone through five editions. He also published a systematic work on Clinical Medicine, which appeared in 1879.

Among his other contributions to medical science which are noteworthy, were his "Reports upon Continued Fever, Chronic Pluerisy, and Dysentery;" his "Practical Treatise Upon the Pathology, Diagnosis, and Treatment of Diseases of the Heart;" his celebrated essays on "Variation in Pitch and Percussion of Respiratory Sounds," and "A Study of Heart-Sounds in Health and Disease," which received prizes at the meetings of the American Medical Association in 1852 and 1859. His "Manual of Auscultation and Percussion" was published in 1876, and he only recently prepared a fourth edition. He also wrote "A Practical Treatise on the Diagnosis and Treatment of Diseases of the Heart," "A Practical Treatise on the Physical Exploration of the Chest" (of each of which a second edition was soon called for), a series of clinical lectures on "Phthisis, its Morbid Anatomy, Etiology, etc.," and "The Physical Exploration of the Lungs by Means of Auscultation and Percussion;" and medical essays from his pen appeared in quick succession.

Dr. Flint always filled a prominent position in the profession, and was elected President of the New York Academy of Medicine in 1872, and in 1876 was a delegate to the International Medical Congress held in Philadelphia. He was active in the organization and was warmly interested in the welfare of the American Medical Association, and in 1883 was elected to its highest office, and at the meeting at Washington, D. C., he accordingly officiated as President of the Association. It was in consequence of a recommendation contained in his address that an invitation was extended to the International Medical Congress to hold its next meeting in this country in 1887. Dr. Flint received the well-merited compliment of being nominated by both the first and the subsequent committee of arrangements for the Presidency of the Congress.

Few American physicians have been so widely known, and very few have been able to exert so extensive an influence upon the profession, or employed great powers so decidedly for the welfare of their fellows.

We can add but little, *in memoriam*, to the above record of the meritorious life and character of this great physician who is no more among us. Austin Flint will be mourned for many months to come in this and other lands, and missed by the rising generation of physicians, because of the all-pervading impress of his character upon the medical work of the younger men and the value of his judicious medical councils. His work, however, still lives, and his good and great name will be handed down to after generations as that of a true physician, worthy of all emulation.

He has passed away at a somewhat critical period in American medical history. His influence and council will be missed. Let us hope that around his bier strife shall cease and all dissensions may be healed.

HOSPITAL NOTES.

PUBLIC PROPHYLAXIS OF INSANITY.—The following resolutions were adopted by the trustees of the State Hospital for the Insane, Warren, Pa., March 18, 1886:

RESOLVED, That the Physician-in-Chief and Superintendent be requested to give general notice that from two to six o'clock of the afternoons of the second and fourth Wednesdays of each month, he will give advice and counsel to those who may feel that the symptoms of mental disorder are developing in themselves, or in any member of their family.

RESOLVED, That the Physician-in-Chief and Superintendent be also requested to prepare a series of papers, for general distribution, on the prevention and causes of mental disorder.

This is a new departure in the direction of public hygiene and we hope it may result in much good in the community in which Dr. Kiernan lives and labors.

The great trouble likely to be encountered will probably be to find people willing to acknowledge that they have premonitory symptoms of mental disorder, the majority of such persons being generally willing to concede, that every one else but themselves is likely to become insane. We hope also that it is not the purpose of this hospital to give advice, to those able to pay, free of charge.

DR. HARVEY BLACK—The Virginia Medical Monthly thus refers to the Superintendency of the Southwest [Va.] Lunatic Asylum:

We are gratified to learn through recent correspondence that the common desire of the people and the profession is that Dr. Harvey Black, of Blacksburg, Va., shall be Medical Superintendent, aided by Dr. Robert J. Preston, of Abington, Va., as Senior Assistant Physician. Knowing both of these gentlemen as well as we do, we have no hesitation in endorsing the selection as the best that could be made under the circumstances. Dr. Black's ability as an alienist is established in professional esteem; and his management of the Eastern (Va.) Lunatic Asylum, until corruptly displaced by reason solely of his political preferences, made that institution a model one, until it fell into the control of those who sought office rather than do good. Dr. Preston is a gentleman of marked professional ability, whose modesty, perhaps, is his greatest fault. The office seeks these gentlemen, and it is to be hoped that they will consent to serve in them.

Insane asylum are not legitimate spoil for political victors. The insane are the mentally maimed in life's hard

battle, and over their abode humanity should ever float a flag of trace, that no political party might touch the wounded for political purposes.

Dr. E. N. BRUSH of the Pennsylvania Hospital for the insane, department for males, makes the following interesting announcement:

PHILADELPHIA, March, 1886.

DEAR SIR:—In pursuance of a plan made more than two years ago, I have decided to issue, through Messrs. P. Blackiston, Son & Co., a manual for the instruction of attendants and nurses in the care of the insane.

It is not the intention that the work shall in any way supplant—but rather supplement—the rules and regulations now in force in hospitals and asylums for the insane. Extended experience in the instruction of the nurses and asylum attendants has convinced me of the value of methodical training, based upon an elementary knowledge of anatomy, physiology and hygiene, and the manual about to be issued, as will be observed from the table of contents, has been written with this object in view. It has been based mainly upon lectures, delivered to attendants, and now in use in the Training School recently established in this hospital, and is intended to be wholly practical.

With the co-operation of asylum officers, it is hoped to place a copy of the manual in the hands of every attendant in the United States.

Yours, very truly,

E. N. BRUSH.

DR. T. M. FRANKLIN, Medical Superintendent, New York City Lunatic Asylum, Blackwell's Island, has tendered to the Board of Commissioners of Public Charities and Correction his resignation and the same has been excepted to take effect on May 1st next. A very important and sudden change in the entire management of the institutions for the insane in the medical department has moved him to this prompt resignation. Dr. Franklin's post office address, after May 1st, will be "Box 87, Plainfield, New Jersey."

IN THE RESIGNATION OF DR. D. D. RICHARDSON, the insane department of the Philadelphia Alms house, loses a good and tried officer.

DR. B. D. EASTMAN, as superintendent, and T. F. Wentworth, as assistant physician, take charge of the Topeka (Kansas) Asylum, vice Drs. Tenny and Lindsay resigned.

Dr. J. CRICHTON BROWN, who has so long cared for the benighted insane of a part of Great Britain, has himself been knighted by her Majesty, the Queen of England.

DR. A. E. MACDONALD'S already large sphere of labor has been enlarged by the new position of general superintendent of the insane of New York.

THE ESSEX COUNTY, NEW JERSEY ASYLUM, for the insane was burnt January 2nd, no lives lost. The fire originated in a ventilating shaft.

Dr. E. P. STRUSON, succeeds Dr. G. P. True, resigned at Osawatomie.

REVIEWS, BOOK NOTICES, &c.

SENSATIONAL INSANE LITERATURE.—

The consideration of the literature of insanity is hardly complete if we exclude from our reading the side lights thrown upon the subject by the non-professional alienists, who also include in their discussions of mental disease, not only patients but the doctors as well. The psychological studies of the great fictitious lunatics, like Hamlet and Ophelia, have exhausted the readers as well as the subject, but are still interesting in moderate doses. We must not forget either, in our reading, the motley collection of words by so-called recovered patients, who don't, as a rule, think very highly of asylums or of those in charge of them; and why should they? with the highly developed egotism and self-consciousness which is at the bottom of all forms of reasoning insanity, they must necessarily feel the arrest and forcible detection of such important persons as themselves, is not only an individual wrong, but an outrage upon the community, where personal liberty of innocent persons is the foundation of society.

The writer had supposed that the Charles Reads and the Wilkie Collinses, in their sensational writings, had disclosed the lowest depths of crime and heartlessness to which the physicians of insane asylums are so naturally and generally inclined, but lately in reading a German novel for improvement, for of course doctors don't read novels for amusement, he came upon a new group of physicians and patients.

In the novel "Der Irrenarzt," the insane asylum doctors,—the author has gone deep into the heart as well as the actions of his hero, which he lays bare to us. His hero, for the superintendent and proprietor of the private insane asylum at ——— near Paris, seems to be the hero, as he fills the "title role," is a man whose immense skill in diagnosing and success in treating insanity has made him famous throughout Paris and its environs, and he commands the confidence of not only the community in general, but of the medical profession in particular, and has his asylum well filled with the best paying patients of the region. All of which yields him a large return in money and reputation. This successful professional career is not enough, however, to satisfy his avarice, which seems to be his predominant passion and he has other sources of gain. In a special book clasped by an intricate lock, he keeps regularly posted his receipts from fortunate heirs, of sums promised and received upon the death of certain aged and rich insane relatives committed to the care of this insane doctor. He also has numbers of notes of hand given by various expectant nephews, sons, or brothers, whose insane relatives still survive, and which are payable by the heirs upon receipt of the news of death of the patients, by the drawers of the notes, that there was as little delay as possible in bringing about the conditions of payment may be well understood. The doctor's powers of prevision were so great that he could

tell the very day upon which the notes in question would come due, even though, to make the result seem more natural, weeks or months were required for its accomplishment.

But even these two fruitful sources of gain did not satisfy the doctor's cupidity, and he was combined with two intimate friends, the only ones we read of his possessing, in the forging and raising of checks, and drawing by this means further large sums into his treasury. For this last enterprise he had good facilities in having among the correspondence of his patient's relatives' signatures and hand writing exceedingly useful in filling up and signing checks. As a profound chemist, he could supply certain rare and secret chemicals to be used in raising and altering genuine checks, and altogether might be regarded as a very able and successful man in his line. Whether, as alienist, financier or secret murderer. The shooting of a rich young man, the beheading of a homeless cripple to shield him and his friends from detection; and the attempted removal of three persons who stood in the way of the inheritance of an estate, by one of his confederates, caused him some thought and anxiety, but he is able to throw it off with his other cases, when the hours of business are over.

This may seem an exaggerated statement, but it is really a part of the plot of a novel by a German author of reputation, which is reprinted in the original language in this country for the reading of our German fellow-citizens.

I should state in justice that in the author's mind there are also good doctors, and these gentlemen possess the greatest scientific attainments, combined with a knowledge of new and generally unknown remedies, and their prescriptions have a marvelous and invariable success, which can be predicted by the doctor to a minute. There is an instance of this power and precision in a ships surgeon, who has a rare remedy, which few of his colleagues know, and which he obtained from the Indians, presumably living about New York. This remedy is to cure pneumonia when given in three doses at intervals of half an hour. The patient will suffer the most intense and frightful thirst, but is on no account to be given any water, for upon drinking a single drop the patient will at once become a violent maniac, which in the course of the story he does.

The new and interesting medical facts presented must be the excuse for this notice.

S. B. L.

IL MANICOMIO.—A Journal of Psychiatry.—

The above valuable periodical, to the high honor of the Italian specialty of alienism, one of many, is issued from the asylum for the insane at *Nocera Inferiore*, near Naples, and is conducted by an able staff of editors and contributors, has reached us as a second volume of 256 pages octavo for the current year. The contents indicate good judgment on the part of the directory, and superior attainments and ability on that of its numerous zealous collaborators.

The leading article of the present volume is from the pen of Dr. Ventrà, one of the physicians of the above asylum. The subject is "Chorea and its treatment by Curare." It would be no ungratifying task to furnish a translation of the whole of this interesting and truly instructive

tive production, but available space will not permit the indulgence. The author has certainly not entered on his work without ample acquaintance with the existing literature relating to his subject. No less than 140 various authorities, pro and con, are cited by him. An attentive examination of the quotations given by him justifies the conclusion that his advocacy of the therapeutic merits of curare, in the treatment of chorea, was not uncalled for, and that his practical testing of its safe employment and its curative efficiency, entitles him to no meagre claim for courageous originality.

Dr. Ventra reports three cases of well-determined chorea, two of which were in females and one in a male. The medicine was employed hypodermically. The following diarial notes of the first case, which was that of a girl of 18 years, on whom various other modes of treatment had proved fruitless, will best exhibit the therapeutic procedure and the fortunate result:

DATE.	DOSE.			STATE OF THE PATIENT.
	Morning.	Midday.	Evening.	
July 21....	5 mm.	5 mm.	5 mm.	No sign of intolerance; a short calm after the injection.
July 22 ...	1 centg.	1 centg.	1 centg.	More tranquil; choreic movements on left only; copious, pale urine.
July 23....	1 centg.	1 centg.	1 centg.	Improvement more sensible; slept in night many hours. A few minutes after the injection, the movements completely ceased, and they are now more obedient to the will. For some time the ataxia shows less intensity.
July 24....	1 centg.	5 mm.	1 centg.	Slept through the night, and is less excitable. The improvement observed after the injections, becomes constantly longer.
July 25....	1 centg.	1 centg.	1 centg.	Better; copious urine.
July 26....	1 centg.	1 centg.	1 centg.	Stuttering gone, also facial contractions. During repose the arm alone makes some slight movements. The psychopathic symptoms have almost disappeared.
July 27. ..	1 centg.	1.5 centg.	1 centg.	Still better. Sensibility normal on both sides. Dynamometry, in left hand, 25; right, 40.
July 28....	1 centg.	1 centg.	1 centg.	The choreic shakes have ceased. In the complex movements of the hand only a little uncertainty is yet observed.
July 29 ...	1 centg.	1 centg.	1 centg.	Same state.
July 30....	5 mm.	1 centg.	5 mm.	Is perfectly recovered. A little weakness in left arm

The injections were made changingly on the shoulder, the breast and the thigh of the left side. As all the choreic symptoms had ceased on July 31, I suspended the curare. During the treatment there were no signs of intolerance; the torpifying action was shown shortly after the injection in resulting quiescence (which gradually lengthened), of the choreic movements. Another effect, undoubtedly due to the influence of the drug, was the increased flow of the urine, and the lowering of the pulse observed for a short time after each injection. On the 1st of August I prescribed a restorative tonic treatment, and advised the use of the baths

near Castellamare; from which the patient returned in September, strong and ruddy. She returned to her work, and has had no relapse.

Dr. Ventra's second case was more obstinate than the preceding one. The treatment by curare, hypodermically, had to be continued for a month, and the doses were carried much higher. The total quantity injected was 1 gramme and 16 centigrammes. In the first four days, 8 centg. daily; next eight days 4 cent. daily; then six days of 6; eight days of 4 and last four days of 2 centg. daily. For the first four and last four days, the injections were two daily; on the all the other days, three daily. The patient went home permanently cured on the fortieth day. The total number of the injections was 82, and the total quantity 116 centigrams, thus giving an average of a little over 1 4-10 centg. for each.

The treatment of the third case lasted twenty days, and resulted in perfect recovery. The daily quantities varied from 1 centg. up to 4, and on one day, the fourteenth, to 8 centg., representing three injections on each day.

As there must be in America, as well as in other countries, a certain number of the *nil admirari* class of medical philosophers, it will not be at all marvellous should some inkspreader inform us that he knew all about the therapeutic action of curare in the treatment of chorea long ago, and had proved its curative powers, or its utter inefficiency, ever so many times. Jack Falstaff slew "eleven men in buckram," and the dog that outran the wolf, that is, ahead of him, no doubt told his cousins a wonderful story of his victory. Nevertheless, as it would appear from Dr. Ventra's case reports that curare may be employed hypodermically in limited doses, without danger to life, some of the less overwise of the profession may give it a trial in rebellious cases of chorea. W.

CHEYNE-STOKES RESPIRATION—A new theory. By Thomas W. Poole, M. D., Lindsay, Ont.

This respiratory phenomenon having been briefly discussed in the editorial columns of the *Canada Lancet* (February, 1886), the author makes it the subject of a paper of no small interest to the profession in a later March number of the same Journal and endeavors to elucidate this difficult problem.

All former theories on this subject maintain that blood loaded with carbonic acid and deficient in oxygen, acts as a stimulus to the nervous centres. This view of the case, the stimulating character of impure blood, was suggested by Dr. Brown-Sequard himself. But the author thinks that it rests upon no actual facts of inductive science, and regards it absurd, to attribute to bad blood, deficient in oxygen, the power of *stimulating* the nerve centres, in the face of the admitted physiological law, that the activity of those centres is directly dependent upon their receiving a due supply of oxygenated blood. He says: "It is an outrage on physiological propriety to speak of utilizing blood loaded with impurities with which to stir up the sluggish nerve centre! Surely there is something wrong about a theory, or an explanation, which not only common sense would seem to negative, but which is directly antagonistic to established physiological facts."

The explanation of this curious state, which Dr. Poole ventures to

offer in this paper is that venous blood, loaded with carbonic acid and deficient in oxygen, is held to play its legitimate part of a depressant and paralyzer to nerve function.

Dr. Poole thus interrogatively discusses this subject: "Why was impure venous blood assumed to be a stimulus to nerve function? Because it was found that a deficient supply of oxygen in the blood produces a contraction of the arterioles of the body, and this arterial contraction was held, and is still held, to be due to a *stimulus* from the associated nerves, the vasomotor nerves, of the arteries. This stimulus, it was taken for granted, came from the venous blood.

Is this doctrine true, that arterial contraction is due to nervous stimulation? Dr. Poole thus answers this interrogatory: "The arterial muscle belongs to the non-striated or involuntary class of muscles; and there is ample physiological evidence that *this class of muscle contracts, not when stimulated by its motor nerves, but when these nerves are cut, or paralyzed, or dead.*" And here followed the facts, as Dr. Poole views them, which also show that the arterial muscle is not alone, or exceptional, in the role just attributed to it.

The muscles which close the glottis and those which open the glottis are both under the motor control of the inferior laryngeal nerve. When this nerve is cut, or paralyzed, as by pressure of a tumor, etc., the glottis closes spasmodically, *both sets of muscles contracting*, and the closure takes place, as Dr. Burdon Sanderson says, "not because the dilating muscles do not act, but because they are overpowered by their antagonists." (Hand-book for Phys., Laborat. Amer. ed., pp. 308, 317, 319; Dr. Austin Flint, Prac. Med., 5th ed., pp. 294, 309, 371; Gutman, Phy. Diag. p. 40). Spasms of the glottis is therefore due, not to nerve stimulation or irritation, but to nerve paralysis.

The horse breathes exclusively through his nose, and this cavity is closed by the *contraction* of its constrictor muscles when the facial nerve is divided. As a consequence the horse dies from asphyxia. (Strange-way's Vet. Surg. p. 209).

All our text books assert that section of the vagi produces paralysis of the œsophagus. This is manifestly an erroneous conclusion. If it were true, the œsophagus would be reduced to a mere flaccid tube. Instead of this, Dr. Dalton states that the food and drink swallowed, in a few minutes are suddenly rejected by a peculiar kind of regurgitation. (Phys., p. 473). Dr. Burdon Sanderson has it among the effects of the section referred to, that the muscular fibres of the stomach are paralyzed, so that the regurgitation of food from the stomach is apt to take place. (Hand-book, etc., p. 318). This behavior of the gastric muscle, and of the œsophageal muscle is a proof, not of paralysis, but of more or less active contraction.

If the reader chooses to follow up the inquiry, he will find that the bronchial, intestinal, and other involuntary muscles follow the same law.

Among other effects of section of the cervical sympathetic, as recorded by Dr. Brown-Sequard, are: contraction of the erectile muscles of the ears, contraction of the iris—of the eyelids—of almost all the muscles of the eye, of the muscles of the angle of the mouth, and of others. Among all these evidences of muscular *contraction*, can it be possible that the effect of

this section on the *arterial muscle* was one of dilatation? In his "Lectures on the Central Nervous System," in which the effects of this section are detailed at great length, *Dr. Brown-Sequard nowhere speaks of the arteries as relaxed or dilated.* With him, it is always "the blood-vessels" which are "paralyzed," and "the blood-vessels" which are "dilated." He says, "the hanging down of an animal by holding it up by the hind legs in producing a congestion of the head, produces very nearly all the effects of this section." (Pp. 140-143). All this, and other facts which might be urged, did space permit, is quite consistent with a condition of mere venous fullness, resulting from arterial contraction.

That this is, of necessity, the actual condition present, is not a mere conjecture, but admits of positive physiological proof, if the law of uniformity of cause and effect counts for anything in physiology.

Dr. Burdon Sanderson shows that the splanchnics are the great vasomotor nerves of the abdominal viscera, and he states that after their section, "the vessels of all the abdominal viscera are seen to be dilated." What "vessels" are these? The reader has been told by this eminent physiologist that after section of vasomotor nerves the corresponding arteries are "paralyzed" and "dilated," and he naturally expects to find this shown to be the case after section of the splanchnics. Dr. Burdon Sanderson does not here once allude to the state of the arteries! What he finds is that "the portal system 'is full of blood.'" "A quantity of blood is, so to speak, transferred into the portal system, and thereby as completely discharged from the systemic circulation, as if a great internal hemorrhage had taken place." (Hand-book, p. 260). In other words, the arteries are empty and the veins are full. Just think of it! On the theory of the text books, the arterioles here *ought* to be "paralyzed and dilated." They are empty and contracted.

The arterioles are always empty and their muscles contracted when their nerves are cut or paralyzed, and such is also invariably their condition *in death*, when nerve force is extinct.

"This is inadvertently proved" the author says, "to be the case by Dr. Burdon Sanderson, in his experiment designed to prove the contrary, in which it is shown, that of two frogs experimented on, the heart in both being exposed and the ventricle cut open, the one whose nerve centres were uninjured bled the most from the aorta. In the frog deprived of its central nervous system only a few drops of blood escape,—the quantity that is to say previously contained in the heart, and in the beginning of the arterial system. In the other, the bleeding is not only more abundant but continues for several minutes after the section. (Hand-book, etc. 296.)

The reader who candidly studies this experiment, as given in the Hand-book, pp. 246, 296, cannot fail to see that it is the arteries of the unpithed frog which contain most blood, and that it is the arteries of the pithed frog which are empty, and that here the whole mass of blood has come to rest out of reach of the influence of the heart (p. 246)—that is in the venous system; an effect brought about by contraction of the arterial muscles, which "in dying drive their contents into the veins." (Kuss. Phys. p. 181.)

This is their condition in asphyxia also, in which case the great veins

if cut into will spirt like arteries (Hand-book p. 332), and this is what occurs as part of the phenomena of the Cheyne-Stokes respiration.

The author concedes that "bad blood, arterial contraction and venous engorgement go together," but contends that, "so far from this being a state of nervous stimulation, it is precisely what occurs in the dying and finds its completion in death and suggests the following new theory :

"The salient points of the Cheyne-Stokes respiration are alternating periods of arrest and of excitement of respiration. The periods of suspension of respiration usually last from a quarter of a minute to half a minute while the periods of rise and fall of respiration are about the same or rather longer duration. In the former period the thorax is absolutely motionless and the patient appears almost as if dead. Then a faint wave of inspiration is noticed, followed by other respiratory efforts shallow and slow. The succeeding respirations become gradually deeper and quicker, until the chest is agitated with severe dyspnoea; then, arrived at its maximum, the paroxysm abates, the retrocession being as gradual as the onset, and at the end there is a period during which the breathing is in complete arrest. That at this stage the arteries are strongly contracted is proved not only by the increased tension of these tubes, but by the arrest of the process at the outset by the inhalation of nitrite of amyl, which dilates these vessels." (Sanson Phys. Diag. Dis. of Heart pp. 35-37).

He assumes with Dr. Sanderson and others, that there is here a condition of partial paralysis of the respiratory centre; that the blood is imperfectly arterialized, is loaded with carbonic acid and deficient in oxygen, and asserts that *such a condition of things will naturally produce, not stimulation, but failure of function in the nervous centres.*

To him nerve failure means contraction of the arterioles, systematic emptiness and venous engorgement, the great mass of the blood being transferred to the venous reservoirs out of reach of the influence of the heart.

"As the heart continues to beat" he assumes that, "a small quantity of blood still finds its way through the lungs, and from its very scantiness, is capable of being ærated by means of the exchanges of gases still going on in the lungs, owing to the presence of residual air, during the temporary, partial or complete arrest of respiration. (Kuss.) As a consequence, the quantity of blood reaching the nerve centres, though small, is at least partly oxygenated, and serves to revive the function of these centres, imperfectly at first, but with momentary improvement."

The effect of this revival on the vasomotor centres is to facilitate the dilatation of the arterioles, in which the pulmonary vessels share, permitting, ere long, the inrush of venous blood from the distended vena cava and portal system, and its transmission onwards through the heart and lungs.

This corresponds to the period of increase in respiratory function, in which the laborious efforts of a feeble mechanism have been mistaken for an exaggerated impulse from an excited and overacting or exploding nerve centre.

Meanwhile, impure blood from the venous reservoirs, (finding an entrance through the now fairly dilated pulmonary vessels), begins to fill

the lungs in such quantity (as it is drawn onwards by an inequality of pressure, towards the as yet unfilled arteries), that the whole mass of blood, failing to be arterialized with sufficient rapidity, again becomes unfit for the maintenance of nerve-function or for the perpetuation of processes depending upon it.

In such a case, a previously weak organ or centre, is the first to suffer. The medulla oblongata is such an organ in this case, and its contiguous centres for respiration and circulation fail together. Bad blood and deficient blood, acting on centres previously paretic or enfeebled, have done their work, and again the respiration is suspended. The vaso-motor centre is again so functionally weakened that it loses control of the arterial muscle—the “inherent contractile force,” which all physiologists assign to muscular tissue, thus freed (as in the examples enumerated above), induces “the strong arterial contraction” referred to by Dr. Sanson, which contraction of the artery is all the stronger the nearer nerve force is to cease in the extinction of life.

This arterial or systemic contraction again empties the lungs, and refills the venous reservoirs from which the blood is again drawn, at first slowly and then more rapidly, as the process repeats itself.

This is his explanation of the Cheyne-Stokes respiration, based upon what the author regards as sound—though as yet unacknowledged—physiological principles, according to which paretic and enfeebled nerve centres are helped by their appropriate pabulum—oxygenated blood—and are overwhelmed and have their function suspended by what is naturally calculated to poison and paralyze them—impure, venous blood, deficient in oxygen and loaded with carbonic acid. As a proof, if such be needed, that carbonic acid is a poison and not a stimulant, it may be mentioned on the authority of Periera, that the inhalation of this agent produces spasm of the glottis, and this, we have seen above, is undoubtedly due, not to nerve stimulation, but to nerve paralysis.

How such an agent, he concludes, could ever be regarded as playing the part of a stimulant, can only be accounted for on the exigency of an erroneous theory, which demanded its modicum of nerve force from nerve centres actually being paralyzed.

This theory of Dr. Poole's is a plausible one, in harmony with the distinguished author's physiology, as set forth in his book, “Psychological Therapeutics,” and we are inclined to regard it with favor, but not having the time to discuss its merits more at length than the author has, and to refer to possible objections, we place it without further comment before the reader of the *ALIENIST AND NEUROLOGIST*, with the assurance that it is worthy of thoughtful consideration.

LECTURES ON THE CARE AND TREATMENT OF THE INSANE. For the Instruction of Attendants and Nurses. By W. C. Williamson, M. D., Assistant Medical Officer, Hospital for the Insane, Paramatta.

This compact and instructive little book comes to us from a great distance and shows how wide spread is the desire to ameliorate the condition of these unfortunates—spreading as far as humanity's bounds extend.

The book is prefaced as follows by Dr. F. Norton Manning: “If attendants on the insane are not trained in the knowledge needed for their

responsible duties, but left to grow by chance into their official shape, they can hardly fail to come far short of the proper standard of intelligent efficiency necessary to make them fit guardians of the inmates of hospitals for the insane." It is clear that attendants, like hospital nurses, should be specially trained; and yet, whilst "manuals," and "handbooks," and "lectures" for hospital nurses have been published, and can be obtained by the dozen, the tiny and very insufficient "handbook" for the attendants, published by Dr. L. S. Forbes Winslow, was, until a few weeks ago, the only volume containing practical instructions for those having the care of the insane. Some years ago Dr. W. A. F. Browne, when holding the position of physician superintendent of the Crichton Institution at Dunfries, conceived the idea of lectures to asylum attendants, and carried it into practice; but so far as I am aware these lectures were never published. In 1876 Dr. Clouston, the physician superintendent of the Royal Edinburgh Asylum, always in the van of progress in questions relating to asylum management, read a paper on the training of asylum attendants at the annual meeting of the Medico-Psychological Association; and within the last year or two the question has been warmly taken up by Dr. Campbell Clark, of the Glasgow District Asylum, Bothwell.

"I have for a long time been anxious to add to the knowledge gained by attendants by work and experience in the wards of the institutions for the insane in this colony, by some lectures on the care and treatment of insane patients, but owing to the pressure of other work this has remained as an unfulfilled duty; and when Dr. W. C. Williamson early in this year undertook the task, I gladly accepted his offer.

"The lectures here published are utilitarian in their scope, and are intended to supplement and not to override the instructions contained in the rules for attendants and nurses drafted by the medical superintendents of the hospitals.

"When they were ready for the press, copies of the handbook for the instruction of attendants on the insane, prepared by a sub-committee of the Medico-Psychological Association, and published in 1885, were received. Neither the English handbook, nor the lectures written by Dr. Williamson, cover the whole ground, but both are steps in the right direction, and if followed by some practical ward teaching, will tend to give attendants and nurses in charge of the insane a greater interest in, and a better knowledge of, the duties of their position."

We have carefully examined and cordially commend this little book as a good *vade mecum* for attendants, containing most of the essential precepts for the kindly care and judicious nursing of the mentally maimed.

MANUAL FOR THE INSTRUCTION OF ATTENDANTS AND NURSES IN HOSPITALS FOR THE INSANE. By Edward N. Brush, M. D., Senior Assistant Physician, Department for Males, Pennsylvania Hospital for the Insane, Philadelphia; late Senior Assistant Physician, N. Y. State Lunatic Asylum, Utica, N. Y. Philadelphia: P. Blakiston, Son & Co., No. 1012 Walnut Street. 1886.

This publication is in press and will be noticed when a copy is received.

Recherches Cliniques et Therapeutiques sur L'épilepsie, L'hysterie et L'Idiotie. Compte rendu du service des epileptiques, et des enfants idiots

et arrieres de bicetre pendant L'Annee 1884, par Bourneville medecin de bicetre Budor, Dubarry et Leflaive, Internas du Service et P. Bricon, docteur en medecine. Volume V, avec onze figures, cinq planches et un plan.

Quelques Cas D' Epilepsie Traites avec Succes par L'Hydrotherapie et les Bromures a hautrs Doses, par le Dr. P. Glatz, Medecin de l' Etablissment hydrotherapique de Champel (pres Geneve) Membre de la Societe des medecins de Geneue et des Societes de therapeutique et d'hydrologie de Paris.

Schema der Wirkungsweise der Hirnnerven. Ein Lehrmittel für ärzte und Studirende in Farbendruck Dargestellt von Dr. Jacob Heiberg, O. O. Professor der anatomie an der kgl. Norwegischen Fredriks-universit zu Christiania, Ritter Mehrerer Orden, Inhaber der Denkmünze von 1870-71.

The Nervous Symptoms of So-Called Lithæmia. By Landon Carter Gray, M. D., Brooklyn, Professor of Nervous and Mental Diseases in the New York Poloclinic; Visiting Physician to St. Mary's Hospital, and to the Hospital for Nervous and Mental Disease, Brooklyn.

Die Principien der Epilepsie-Behandlung von Dr. Albrecht Erlenmeyer Dirigirendem Arzte der Heilanstalt fuer Nervenkrankte zu Bendorf am Rhein. Vortrag, Gehalten am 7. October 1885 im Verein der zu Coblenz.

Clinical Cases. Three Cases of Insanity Treated by Removal of Depressed Bone.. By W. D. Fletcher, M. D., Superintendent of the Indiana Hospital for the Insane, Indianapolis, Ind.

Der gegenwärtige Stand der Elektrotherapie in Theorie und Praxis. (Vortrag, gehalten in der Gesellschaft fuer Heilkunde am 9. Februar, 1886.) Von Prof. Dr. A. Eulenburg.

Official Register of Physicians and Midwives now in practice to whom certificates have been issued by the State Board of Health of Illinois, 1877 to 1886.

Ricerche Cliniche sui Disturbi Visivi Nell' Epilessia del Dott. G. D'Abundo, Assistente alla Clinica Psichiatrica nella R. Universita di Napoli.

Third Report of the Committee on Lunacy of Board of Public Charities of the State of Pennsylvania. September 30, 1885.

Esthetics of Medicine. By H. A. Cottell, M. D.

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*ORIGINAL CONTRIBUTIONS.***More About the Arterial Muscles.---The
Stimulation (?) of Asphyxia.---Cheyne-
Stokes Respiration.***ARTICLE II.*

By THOMAS W. POOLE, M. D., Lindsay (Ont.), Canada.

IN a previous article it was shown, on the highest physiological authority, that it is not true, as the text books assert, that the glottal, œsophageal, gastric, bronchial, arterial and other involuntary muscles are paralyzed, when deprived of their motor nerve influence by section or destruction of those nerves or of the nervous centres. On the contrary, it has been proven that these muscles undergo active contraction when these nerves are cut or paralyzed.

Having, I trust, substantiated my claim that such is the law, or rule, in regard to these important groups of muscles, it may fairly be held that the same is necessarily true also of the few remaining muscles of the involuntary class, which are employed in the contractile functions of the bladder, of the uterus, the ureters, the *vas deferens*, etc. Of these the most interesting is the uterine muscle; and although facts are lacking to show that this organ

and the other muscular structures just named contract like the stomach, when their motor nerves are cut, this much at least is established, that the uterus is capable of performing the complete act of parturition, in the functional absence of the spinal cord, as from injury or paralysis, and even after the general death of the body. [Dr. W. B. Carpenter, *Hum. Phys.* pp. 979-980.] Besides, it can be shown that these last named muscular structures, in common with the muscular groups alluded to above, all contract under an uniform condition which is equivalent to nerve paralysis. This will, perhaps, be made to appear in a future article, to which this part of the subject more properly belongs.

MORE ABOUT THE ARTERIAL MUSCLES.

In the meantime, in the case of the involuntary muscles of the arterial coats, something more remains to be said. Proof was offered in the previous article that arterial contraction and emptiness with corresponding venous fullness attends section or destruction of vasomotor nerve centres or nerve trunks. The blood in these cases is transferred from the corresponding arteries, into the veins, which are more capacious than the arteries, and in which the blood is prone to "come to rest out of reach of the influence of the heart."

It will be obvious that this state of things is incompatible with what M. Charcot calls "the paralytic dilatation" of the arteries, as a result of vasomotor nerve section, and could not occur, if after this section the arteries remained "widely dilated," and "permanently larger," as asserted by other authorities already quoted. If this were the condition of the arteries, it is evident that they would be wholly incapable of contracting upon their contained blood, so as to force it forwards through the capillaries and into the veins; an act depending entirely upon arterial contraction, because the force of the heart has already expended itself, and the capillaries have no muscular walls; while, that the veins are merely passive, is shown by the

fact they have no vasomotor nerves, and their calibre is not, as in the case of the arteries, regulated by nerve influence. [Dr. M. Foster's *Phys.*, pp. 265-263.] Thus all the facts show that the arteries, so far from being "dilated" and "paralyzed," are undergoing active contraction.

Some recent authorities appear to suggest the modified idea that the dilation of the arteries, instead of being "permanent," as alleged by some authorities, is a temporary effect—"an opening of the flood-gates," so to speak, in order to facilitate the transmission of blood to the veins. Thus, Dr. M. Foster writes: "The section of the splanchnic nerves causes the mesenteric and other abdominal arteries to dilate, and these being very numerous, a large amount of the peripheral resistance is taken away and the blood pressure falls accordingly; a large increase of flow into the portal veins takes place and the supply of blood to the face, arms and legs, is proportionably diminished." [*Phys.*, 3d Amer. Ed., pp. 240 and 220.]

It would appear that here, as elsewhere, "the fall of blood pressure" is regarded as evidence of "lessened peripheral resistance," and a proof that the arteries are "dilated," the fallacy of which will presently appear.

We read again: "When the nervous system is destroyed, dilation of the splanchnic vascular area causes all the blood to remain stagnant in the portal vessels; and probably these as well as other veins are rendered unusually lax, so that the blood is largely retained in the venous system, and very little reaches the heart." [*Ib.* p. 367.] And further: "When in the frog, the brain and spinal system are destroyed, very little blood comes back to the heart, as compared with the normal supply, and the heart in consequence appears almost bloodless and beats feebly . . . the veins become abnormally distended and a large quantity of blood becomes lodged and hidden as it were in them." [*Ib.* p. 263.]

Here is the secret, both of the emptying of the

arteries and of the fall of blood pressure. The blood comes to rest in the more capacious venous system. [Ib. p. 154], "out of reach of the influence of the heart." Now seeing that the rapidity of the arterial circulation is such that only one-seventh of a second is required for blood to pass from the heart to the radial pulse, how long, think you, would be required to empty the arterial system of the pithed frog, seeing that at first little blood, and very soon no blood, finds its way back through the heart, into the arterial trunks? Why, the time required would be counted by seconds rather than by minutes. There would be no time and no necessity for the terminal arteries to dilate; the emptying of the arteries and the fall of blood pressure being amply accounted for by the fact that *blood is passing out of the arterial system faster than it is being returned to it.*

A precisely similar condition to that just described as resulting from nerve destruction, occurs also in the fatal stage of asphyxia. Here, too, the arteries are "contracted" and empty, and the large veins are so distended that "if cut into they spirt like arteries." [Dr. Burdon Sanderson, Hand-book, etc. p. 332.] And here also, Dr. M. Foster tells us there is a fall of blood pressure in the midst of general arterial contraction. He says: "On account of the increasing slowness and feebleness of the heart, the blood pressure, in spite of the continued arterial contraction begins to fall; since less and less blood is pumped into the arterial system." [Phys. p. 445.] It will be seen that the parallel between the two cases is complete, and that the plain facts, as given by the highest authorities, do away completely with the assumption that, here, the fall of blood pressure is to be regarded as a proof of arterial relaxation.

Even in the slower forms of death, when the process of emptying the arteries is more gradual, there is still no evidence of, and no necessity for, a dilation of the terminal arteries to give exit to the blood; for, granting that contraction of the terminal arteries would tend to hinder

the outflow of blood, this effect would be counteracted by the stronger contraction of the larger arterial trunks above, forcing the blood through and out of the numberless terminal branches ending in the capillaries.

The facts thus far presented refer only to the great vasomotor areas of the cervical sympathetic and splanchnics. It seems unnecessary to attempt to discuss the lesser and local vascular mechanisms, about which little is known, and that little comes to us under the ægis of an erroneous theory. The greater always includes the less. What happens when the life of the chief nervous centres is killed, either by sudden and intended destruction or in death from ordinary causes, happens also in a more limited area when local or subordinate centres are killed or paralyzed. Since in the former case the arteries are found contracted and empty, the same rule must be held to hold good in the case of the individual nerve and artery.

When, therefore, we read in a work like that of M. Foster, that, "division of a nerve supplying a muscle causes a large and sudden increase of the venous flow from the muscle, indicating that the muscular arteries have become dilated," [P. 245,] such an "indication" is to be received with great caution and distrust, not only because weighty facts are opposed to it, but because conclusions of this kind based upon experiments on living animals are liable to the greatest fallacies, but especially because the conclusion arrived at is not the result of direct observation, but is a mere inference, largely influenced by the predominating theory in the mind of the observer, as to what *ought* to be the condition of the arteries under the circumstances, which preconceived ideas in other cases have been found to be wholly opposed to the existing facts.

THE STIMULATION (?) OF ASPHYXIA.

Is it not a strange proposition to put forward in the name of medical science, that an animal dying of

asphyxia is actually undergoing a high degree of nervous excitation. Yet such is actually the teaching of the textbooks in physiology to-day! Dr. Burdon Sanderson treating of asphyxia says: "One of the effects of diminishing the proportion of oxygen in the blood is to excite the vasomotor centre, and thus to determine general contraction of the small arteries. The immediate consequences of this contraction is to fill the venous system." As the process advances, "the heart's contractions become more and more ineffectual till they finally cease, leaving the arteries empty and the veins distended." [Handbook, etc. p. 333.]

There is no mention here of arterial relaxation or dilation, to facilitate the outflow of blood. On the contrary "the immediate consequences" of "a general contraction of the small arteries" is "to fill the venous system," and in a few minutes "the arteries are empty and the veins dilated," the animal being dead. This is precisely the condition which we have seen in the former article to be the direct result of destruction of the nervous centres. It is a process which invariably prevails in the dying and is complete in death. Thus according to Paul Bert, quoted by Prof. Kuss, "death is always owing to asphyxia" [Phys. p. 330.]

Why has it been assumed by physiologists that in this rapid sinking into death the nervous centres are undergoing an unusual excitation? Because as we have just seen, there is "a general contraction of the small arteries," and other spasms and contractions of the respiratory muscles fixing the chest and arresting respiration; and in accordance with the theory of the day, these spasms and contractions of the muscles, depend on active discharges of nerve force, stimulating the muscles to contract. How is this assumed extraordinary activity of the nerve centres to be accounted for in an animal actually dying? There is a "physiological law" which declares that the activity of an organ is directly dependent upon its receiving a due supply of arterialized blood (Radcliff); and

Dr. W. B. Carpenter has said of venous blood, that "it exerts a depressing influence upon the nervous centres," from which they are at length "completely paralyzed." [Hum. Phys., p. 537]

One would have imagined that bad blood, deficient in oxygen and loaded with carbonic acid, would have been the very last thing which a physiologist would have chosen, as a pabulum from which to generate an excess of nerve force! and doubtless the choice was embarrassing enough. But necessity compels. The exigency of the theory is inexorable. Muscular contraction without nervous stimulation is deemed impossible, and there being nothing else to fall back upon, it has been assumed that impure, non-arterialized blood plays the part of a stimulant to the nervous centres.

Accordingly we find a recent and popular writer—Dr. J. Milner Fothergill—in his "Antagonism of Therapeutic Agents," declaring that "the more venous the blood the greater the activity of the respiratory centre. The effect of venous blood is to augment the natural explosive decomposition of the nerve cells. . . . The effect of defective arterialization causes more rapid as well as deeper breathing; more perfect and extensive respiration is set up until properly oxygenated blood is procured." This author would almost lead one to believe that a kindness was done to the rabbit in having its vagi cut. He says, "When the vagi are cut, the respiration is modified; it becomes deeper and more prolonged, fuller and more complete." [P. 88.]

But unfortunately this view of an apparently improved respiration is wholly delusive; for, as Dr. Burdon Sanderson tells us, "notwithstanding the vigor of the respiratory movements, the blood becomes more or less venous,"—the animal is dying, and does die, "commonly before the end of the first day." [Hand-book, P. 317].

Let it be kept in view that the theory of the day explicitly teaches that "the muscles receive from the nervous system a preternatural stimulus to action" [Dr.

Pereira, Vol 2, p. 541,] and that spasm and convulsion "are dependent upon excessive activity of the spinal centres:" [Dr. W. B. Carpenter, *Ib.* p. 846] and we shall see presently to what a depth of absurdity this doctrine has led. In one of Kussmaul and Tenner's experiments, the carotid arteries are ligatured with the effect of inducing general convulsions of the skeletal muscles. Dr. M. Foster* referring to this, says, "In this case, the nervous centres being no longer furnished with fresh blood, become rapidly asphyxiated through lack of oxygen." Such are the conditions under which extraordinary discharges of nerve force have to be evolved; and this absence of fresh blood is held to be the cause of the stimulation of the nerve centres, which on the theory of the day, is necessary in order to account for the convulsions which follow. Dr. Foster immediately adds, "similar convulsions are seen after sudden and large loss of blood from the body at large; the medulla being similarly stimulated by the lack of arterial blood." [Phys. P. 441.] An extraordinary method to bring about stimulation of the medulla and other nerve centres! Is not such teaching as this repugnant to common sense and an outrage on physiological propriety?

THE CHEYNE-STOKES RESPIRATION.

A lower depth of absurdity, if possible, has yet to be reached in the explanations of the Cheyne-Stokes respiration. I quote here from Dr. L. Sansom's "Physical Diagnosis of the Heart," by whom Traube's theory on this subject is said to be "the most plausible." According to Traube, "the first thing which occurs is the establishment of a condition of impaired irritability of the respiratory centre through mal-oxygenation; the long respiratory arrest gives time for the accumulation of carbonic acid in excess in the blood. Arrived at a certain maximum this begins to stimulate, slowly and imperfectly at first and afterwards in increasing degrees, the centre, so that

it develops the respiratory efforts till they culminate in dyspnœa. Then as the centre ceases to be stimulated or becomes exhausted, dyspnœa again supervenes." (Page 37.)

The reader will observe that here the *deficiency* of oxygen and subsequently the *presence* of carbonic acid are made to play opposite and antagonistic parts! The lack of oxygen (instead of stimulating the medulla, as supposed by Dr. M. Foster), first enfeebles the respiratory centre, in the medulla, and then, the same blood, still deficient in oxygen, but now loaded with carbonic acid, counteracts the previous depression, and tones up the weak nerve centre, so that, ere long, it displays extraordinary activity. But, unfortunately this exhilarating pabulum—carbonic acid—is soon exhausted, and the nerve centre resumes its former feebleness till a new supply can be procured. The physiologist is certainly quite impartial and allows the rivals to have their "innings" turn about. How such nonsense as this "most plausible theory" could find a place in physiological literature seems explicable only on the exigency of the hypothesis so often condemned in these pages.

Filehne's theory in explanation of this state is more complicated, and at least equally absurd. Instead of the respiratory centre being stimulated (as Traube says), it is the vasomotor centre which is excited by the presence of carbonic acid. Arterial contraction follows, till "a gradually increasing anæmia of the respiratory centre" is brought about. This anæmic condition excites the respiratory centre "and inspiration becomes more and more deep," till oxygen is supplied to the blood; "the arterial spasm is thus relieved," owing to the freshly oxygenated blood failing to stimulate the vasomotor centre (so as to contract the arteries), as the carbonic acid had previously done. With the relief of arterial spasm, and a consequent normal dilation of the arteries, "the anæmia of the respiratory centre passes off, and with it the exaggerated impulse to respiration, and breathing once more becomes superficial." (P. 137.) In other words, the respiratory centre functionates best when it is

supplied not only with non-arterialized blood, but when it has too little even of that; as soon as the anæmia passes off, and this nervous centre gets a fair supply of blood, it ceases to act—suspends business—till the better times of bad blood and deficient blood come round again, when it is moved to activity once more! To anyone who is not a physiologist this must seem the height of absurdity.

There is still another explanatory theory to be noticed, which I find referred to editorially in the *Canada Lancet* for February, 1886: "Bramwell, who follows the teaching of M. Foster and others, supposes that the respiratory centre consists of two portions, one accelerating (or motor), and one inhibitory. He further believes that these two portions are acted on in opposite directions by the blood, whether arterial or venous. Thus while venous blood stimulates the discharging cells of the centre and depresses the inhibitory portion, arterial blood acts in exactly the opposite direction."

"At the close of the period of apnœa, the discharging portion of the centre is stimulated by the venous blood," with its excess of carbonic acid, and this same blood, at the same time, is depressing the rival, or inhibitory part of centre. The motor or discharging portion of the centre triumphs; respiration becomes established and even exaggerated. Unhappily the victor fails to "hold the fort." As soon as the blood becomes "fully oxygenated," "the inhibitory portion becomes stimulated, and gradually overpowers the discharging portion," so that "the respirations grow weaker and weaker until the state of apnœa results." Then the suspension of breathing restores the venous character of the blood and accumulates a store of carbonic acid, the stimulation of which reanimates the centre previously depressed by the presence of oxygen in the blood. Such appears to be the scope of this theory.

In this, as in the previous explanations, arterial blood is made to play the part of a depressor and paralyzer of the respiratory process, which it is constantly tending to arrest; but while paralyzing one portion of the respir-

atory centre it is stimulating another; and a similar double character is attributed to the action of venous blood. Thus during the brief time from the beginning of apnœa to the culmination of dyspnœa—a period rarely exceeding one minute—the blood passing to the brain is called upon to exert four different and even diverse effects; first as venous blood stimulating one part of the respiratory centre and paralyzing another portion of the same centre: reverse effects being produced a few seconds later by the same blood on its becoming oxygenated. In the time of Paracelsus and Van Helmont it was customary to locate “an imaginary demon,” known as “the Archœus” among the organs and viscera to perform functions not otherwise accounted for. How far have we improved, in some respects, on the time of Paracelsus?

A NEW THEORY SUGGESTED.

Dr. Sansom regards the condition of the respiratory centre in this case as one of paresis and direct exhaustion. He shows that during the apnœal period “the arteries are strongly contracted.” The proof of this is found in the rise of arterial tension; in the depression of the “great fontanelle” of the head, and also in the arrest of the process by the inhalation of nitrite of amyl, which dilates the arteries. On the theory of these pages, arterial contraction is due to vasomotor nerve depression or paralysis; and accordingly we find here that the vasomotor centre, as well as the respiratory centre, is depressed in function. It has been amply shown above, that contraction of the arteries occurs in the dying and is complete in death. It is also one of the prominent phenomena during the last stages of asphyxia and is invariably attended by venous fullness. The condition present during the stage of apnœa in the Cheyne-Stokes respiration, with its contracted arteries and dilated veins, appears to correspond very closely to that present as death approaches and in the later stages of asphyxia.

The original parietic and exhausted condition of the respiratory and vasomotor centres is aggravated by the further depression caused by mal-oxygenation of the blood; which, when venous and loaded with carbonic acid, is invariably a depressing, and never a stimulating agent to nerve function. Vasomotor nerve failure induces contraction of the arterioles, systemic emptiness and venous engorgement, as the foregoing examples abundantly prove; and as a consequence, the great mass of the blood "becomes lodged and hidden as it were" in the great venous trunks. At that moment death is very near, but as the heart continues to beat, it is fair to assume that a small quantity of blood still finds its way through the lungs, and, from its very scantiness, is capable of being ærated by means of the exchanges of gases still going on in the lungs, owing to the presence of residual air, during the temporary, partial or complete arrest of respiration. As a consequence, the quantity of blood reaching the nerve centres, though small, is at least partially oxygenated, and serves to revive the function of these centres "imperfectly at first," but with momentary improvement.

The effect of this revival on the vasomotor centre, is to facilitate the dilatation of the arterioles; in which the pulmonary vessels share, permitting, ere long, the inrush of venous blood from the distended vena cava and portal system, and its transmission onwards through the heart and lungs.

This corresponds to the period of increase in respiratory function, in which the laborious efforts of a feeble mechanism have been mistaken for an "exaggerated impulse" from excited and overacting or "exploding" nerve centres.

Meanwhile, impure blood from the venous reservoirs (finding an entrance through the now fairly dilated pulmonary vessels), begins to fill the lungs in such a quantity (as it is drawn onwards by an inequality of pressure, towards the as yet unfilled arteries), that the whole mass

of blood, failing to be arterialized with sufficient rapidity, again becomes unfit for the maintenance of nerve-function and the perpetuation of processes depending upon it.

In such a case, a previously weak organ or centre is the first to suffer. The medulla oblongata is such an organ in this case, and its contiguous centres for respiration and circulation fail together: bad blood and deficient blood, acting on centres previously parietic, or enfeebled, have done their work, and again the respiration is suspended. The vasomotor centre is again so functionally weakened, that it loses control of the arterial muscle—the “inherent contractile force,” which all physiologists assign to muscular tissue, thus freed (as in the examples enumerated above), induces “the strong arterial contraction” referred to by Dr. Sansom, which contraction of the artery is all the stronger the nearer nerve force is to cease in the extinction of life.

This arterial, or systemic contraction, again empties the lungs, and refills the venous reservoirs, from which the blood is again drawn, at first slowly and then again more rapidly, as the process repeats itself.

Here, then, is an explanation of the Cheyne-Stokes respiration based upon sound, though as yet unacknowledged, physiological principles, according to which parietic and enfeebled nerve centres are helped by their appropriate pabulum—oxygenated blood—and are overwhelmed and have their function suspended by what is naturally calculated to poison and paralyze them, impure, venous blood, deficient in oxygen and loaded with carbonic acid.

Case of Hysteria in a Male.*

Translated by JOSEPH WORKMAN, M. D., Toronto, Canada.

HYSTERIA in its most intense form, corresponding to the grand hysteria in woman, as Charcot has shown, is frequent in man also (hystero-epilepsy with mixed crises), and let it not be thought that its only subjects are the effeminate and emotional, or such as are broken down by excesses, and sorrows, or profound emotions, etc. No! men of vigorous constitutions, in the prime of life, in full maturity, from 18 to 40 years of age, of great muscular power, engaged in rough manual labor, whose emotionality, if not insignificant or next to nothing, at all events falls far short of that state of impressibility which is generally regarded as predisposing to hysteria, become, in consequence of a strong impression which violently disturbs the sensorium, hysterical, in the same manner as women.

Putnam and Walton in North America, and Page in England, have specially studied some of the causes of this infirmity, and have shown that those grave and obstinate nervous states, produced without any traumatic lesion, in persons who have passed through railroad accidents of perilous character, which have rendered them fearful in proximity to any danger—states which were at first designated *railway spine*, but now more appropriately *railway brain*, are simply hysterical phenomena, corresponding to the grand neurosis, in men and women alike.

This completely original phase of the question is very interesting, but above all to the spirit of positivism of the people of North America. The persons who contract this hysteria in railway catastrophies, remain disabled for work for many months or even for years, and they seek for compensation from the companies. The question, therefore, takes rank in legal medicine, and demands from the

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expert a thorough knowledge of hysteria and its multitudinous manifestations.

The diffusion of recently acquired knowledge of male hysteria encountered an obstacle in the erroneous idea entertained of the clinical depiction of the disease in women. It seemed to appear in the two sexes with antagonistic characters; whilst instability and motility are notably its symptoms in woman, and its course is marked by scenes of theatric volubility, in man, on the contrary, it is distinguished for the permanence and tenacity of its symptoms, which resist all therapeutic agents.

The really hysterical nature of this state in man seemed to be inadmissible, because the persistency of its symptoms is irreconcilable with the capricious changes and the instability which are the unique characteristics of hysteria in woman.

The German authors Oppenheim and Thomsen pointedly deny the merely neurotic nature of this state in man, and distinguish it from hysteria by the accentuation and stability of its symptoms. The patients studied by these authors were found in the same conditions as those observed by Putnam and Walton.

In the victims of railway accidents it was contended that the sensorial and psychical alterations were completely different from those of hysteria. Among the sensorial, were instanced the persistent and tenacious anæsthesia which is not presented in the fickleness of hysteria; and among the psychical, the state of moral melancholic and constant depression, in contraposition to the irregular, capricious and susceptible mental state presented by hysteria in woman.

Charcot has expunged these apparently differential characters, and has shown the error of those who believe that motility of the symptoms is the characteristic brand of hysteria, and has clearly proved the identity of the grand neurosis in the two sexes. In fact the sensorial hysteric alterations in woman present the same character of tenacity as in man, though it is as rare in her as it is

frequent in him; and the particular state of psychical depression and the melancholic tendency, common in male hysteria, are observed also, though exceptionally, in woman; there have also been observed in man the same capricious changes of character and temper as are the usual, but not necessary, indicators of the moral state in the hysteria of woman.

Before entering on the case which has led us to write these lines, we take the liberty of summarily recalling, in the examples given by Charcot, the extent to which the permanent symptoms of hysteria in woman—the *stigmata hysterica*, as they are conventionally styled, may appear fixed and tenacious, and, therefore, exempt from that proverbial motility which has been conceded to them, and which, as is pretended, constitutes the characteristics of the infirmity.

The woman L——, known in the history of hysteropilepsy, and celebrated for her "*demoniac*" character, presented crises; she was 63 years of age. She entered the Salpêtrière in 1846. Charcot has observed her incessantly since 1871. "In this period she was affected as she is at the present time, with an absolute, complete sensorial and sensitive hemi-anæsthesia on the right, with ovary on the same side (there is surely a lacuna here), which throughout this long period of fifteen years has never been modified, even temporarily, either by the action of numerous æsthesiogenic remedies, the progress of age, or the menopause. Five or six years ago, when our attention was particularly called to the changes which are observed in the field of vision in hysterical subjects, we discovered in her a very manifest existence of the classic limitation of the visual field, distinctly observed on both sides, but most pronounced on the right. Examination repeated once or twice yearly after this time has enabled me always to detect the permanence of this restriction of the visual field." We shall next cite the case of the patient called Surel, analogous to the preceding, and very common in medical observance. It will then

rest as proved, that motility of symptoms cannot be the univocal character of hysteria in women, and that it has not, therefore, the differential value that has been ascribed to it. "This woman is now 64 years old, and the grand attacks, sometimes replaced by accesses of angina pectoris, have not ceased to appear since 1851, presenting in all this period a complete and absolute sensorial and sensitive hemi-anæsthesia on the left side, that is to say, just as is now met with after the lapse of thirty-four years." Charcot has observed this patient through the last fifteen years, and the hemi-anæsthesia has never ceased. He says "the restriction of the visual field is very marked on both sides, but more so on the left, and has been unchanged for the last five years."

In the asylum for women, in the hysterical department, we have several cases similar to the preceding, in the number of permanent symptoms, but we cannot speak as to their duration, as our tenure of office does not date far back.

In one called M., who entered the Hospice in 1869, the hysteric stigmata are well defined. There is incomplete hemi-anæsthesia on the left, complete anæsthesia to cold and pain, but sensorial anæsthesia is present in only a weak degree; hearing on the left is notably dull; smell and taste are normal. Restriction of the visual field is obvious, but most so on the left. Although she distinguishes all colors, the visual field of blue is more reduced than that of red, and is found within it. This phenomenon is characteristic of the hysteric visual field. She presents various hysterogenic points, one cutaneous in the precordial region, below the mamma, and one over the right ovary. Pressure at these points induces a sensation of burning, precordial pain, and spasmodic phenomena in the pharynx, equivalent to the hysteric globus, accompanied by tinnitus in the ears and beatings in the temporal arteries, which constitute the cephalic aura. All these appear simultaneously, and they correspond to the aura hysterica, which is followed by the attack with its four perfectly marked separate periods.

The spasmogenic points, excitation of which provokes the attack, are, as Pitres says, spasm-restrainers, for if the excitation be made more intense and prolonged, the attack is held back. This woman is one of the various curious cases which we have in this Hospice.

These apparent contradictions having been disposed of by protracted and close study of the disease, the cases of male hysteria—as it always happened in similar circumstances—have been rendered more accessible to the general profession, and as a result they have become more frequent in ordinary practice. In the faculty of Paris five inaugural dissertations on the subject were presented, and M. Klein, the author of one of these, which was constructed under the direction of Mr. Olivier, collected eighty cases. M. Batault, who has written a special work on this subject, whilst serving under Charcot in the Salpêtrière, has brought together two hundred and eighteen cases of male hysteria.

Our own observation is limited to the case of a Spaniard, named Martin Ibarra, aged 35 years, well framed, and having a powerful muscular system. He was present in the catastrophe of the Southern Railway on the 2d of January, 1885. He has a vague remembrance that at the moment of the accident he felt a violent tossing about. He got out of the car, which was one of the hindmost of the train, and he discovered what had happened. The three foremost cars and the engine formed a mountain of splinters. The engine with wheels upwards, had plunged deep into the ground. Ibarra rushed along with the other passengers, to the cite of the derailment, but just as they approached the engine, an enormous outburst of flame took place, and terrified them, putting them instantly to flight. Ibarra says that the idea of an explosion frightened him horribly, and he fled in desperation. When the alarm among the fugitives was calmed, and they returned to the spot of the accident, he felt prostrated and could not stand on his feet. He wished to render assistance, as did the rest, to the unfortunate wounded,

but on moving a short distance he had a swoon which lasted some minutes; after this he was absolutely unable to move a step, so great was his prostration!

It is proper to mention here that we have discovered nothing defective in his hereditary antecedents. His parents died of ordinary diseases, at advanced ages. His own personal antecedents reveal in him a morbid state of mind from infancy. At the age of twelve he had nightmares and monophobia, which is a form of emotional delirium with consciousness, and is characterized by the dread of being alone. He had been an onanist in early youth, and had committed frequent venereal abuses. His character was unchangeable, and had always been subdued and gloomy. He is, however, intelligent, and in his business which is that of a gilder, he is always an active and clever workman, having obtained prizes for his productions at our Continental Exhibition of 1881.

In the night after the accident his sleep was much disturbed, being broken by horrible dreams, which reproduced the scene of the catastrophe in the evening. In the first hours of the night he went to sleep, but only for a short time; he awoke in that painful state of mind which is peculiar to nightmare, crying out, "*Help! I am dying!*" He says he felt as if dying, pressed down by the engine, or crushed under a wagon. In the subsequent nights, and even at present, although not with the tenacity of the first days, he has been distressed by hypnotic hallucinations. At the moment of dropping asleep he is assailed with a hallucination which acts like an electric shock. He screams; he sees the railway catastrophe reproduced! Let us fix on the morbid elements that predominate in the mental state of this patient's dreams and hallucinations. Both these phenomena respond to one, and, perhaps, the same sensorial alteration, and they are closely related on the psychological side, even though their approximation may not be correct in a medical conception, based on their distinct clinical significance.

Dreams, in fact, are compatible with the most complete health; hallucinations on the contrary are always the expression of a pathological state. This is true when we treat generally of the semiologic value of each of these phenomena; but in the patient whom we are now studying, they are manifestations graduated by the same cause, and they consequently have one common pathogeny.

The psycho-sensorial commotion due to the deep and painful impression received by this man, on being so instantly threatened with death, had as its first manifestation dreams, which were replaced by hypnotic hallucinations, so that in this case both phenomena are hierarchically subordinated, as manifestations determined by the same cause. The dream in this case presents essentially the character of the hallucination, since it represents to the patient, under vivid form, the picture of the horror which so thoroughly impressed him in the awake state. A little after the phenomenon is produced, at the moment of dropping to sleep, it assumes the character of a hallucination. The patient continues awake with the same sensorial alteration, just as if the hallucination is prolonged for a good while during the awake state. It generally happens that the impressions of sleep persist in the waking state, and become mixed up in the acts of real life. In a great number of lunatics, says Moreau de Tours, the insanity is but a continuation of their dreams. Analysis of mental diseases has shown that among the intellectual alterations which correspond to insanity, but are compatible with mental health, prolonged dreams are met with. The facts which categorically prove these opinions are abundant in science. Permit me, by way of parenthesis, to quote some very curious cases:

On the 16th of January, 1883, there was published in Paris, a manifesto signed Napoleon; the Prince was arrested the same day, and the occurrence was the subjects of comments, which were in general not very flattering, on the part of the political press. Among the

articles published on this occasion, that of Paul de Cassagnac, in *La Pays* of 17th of January, was distinguished for its biting irony.

Some days afterwards, about January 21st, a man presented himself at the Conciergerie, begging to be put in prison; he said he had just killed M. Paul de Cassagnac;—his evident excitement and animated language did not fail to awaken suspicions in the police, who were accustomed to see a great many insane persons passing under their observance. He was then directed to the infirmary of the prefecture, where he was immediately interrogated. Despite his strange appearance, his narration presented nothing of impossibility, nor even of absolute improbability. He called himself Cousin. He said he was Secretary to Colonel Brunel, aide-de-camp of Prince Napoleon. His highly accentuated bonapartist opinions had been painfully wounded by the attacks in the daily papers, on the prince; but the attitude of *La Pays* had particularly offended him. On the 21st of January he went to the office of this journal, decided on demanding explanations, but he found nobody there; he then ran through a series of empty apartments, until he reached the cabinet of the editor-in-chief, who was seated in his chair, occupied in writing an article. He immediately reproached him on the contents of his article on the prince, accusing him of having infamously attacked a distressed adversary, an imprisoned Prince. Finally he demanded a retraction. Paul de Cassagnac, without raising his eyes, or even turning round his head, continued writing and took no notice of him. Indignant at this attitude Cousin drew out a revolver, and resting his left hand on the right shoulder of M. de Cassagnac, he fired off six shots. The victim fell without uttering a cry; death had been instantaneous.

After hearing this narration, he was searched; he was found armed with a revolver and fifty rounds of ammunition. When being conducted to prison he exclaimed: "Now I expect that I will receive a decoration."

It was in fact possible that a crime had been committed; a messenger was sent to the house of M. de Cassagnac to make inquiry; he said that he had not seen anybody on the day of this imaginary attempt, and he had not crossed the door of the office of *La Pays*. It was evident that the party was insane; he was sent to the Hospice St. Anne, and he entered our wards on the 23d of January—on his entrance he was in a state of mental exaltation which made him dangerous. He talked with great volubility, and expressed himself with much elegance; it was not enough that we showed no doubt of his affirmation, the least smile put him in a rage. Two days afterwards, January 25th, we entered on a regular interrogation, the sequestration had produced its results, and there remained of his previous state only the dregs of a delirium, a less intense excitement; logic was recovering her sway. He repeated to us, however, his first narration, and he gave us some more circumstantial details of his antecedents. He was, he said, the son of a veteran military man; he had received a pretty good education; he was in a college until fifteen years old, at which time his father was assassinated. He was then obliged to leave college, and he became a soldier, and served in the cuirassiers; he afterwards left the land service and went into the marine, and was in the fleet of the Armada which took part in the expedition to Mexico. On returning to France he entered the service of Col. Brunel, as secretary, charged with accounts and correspondence; his duties, however, did not confine him so closely at home as to prevent frequent absences and tours of some months' duration. It is therefore understood that being much attached to the Prince, he had felt very indignant on reading the articles against him; and as he could not obtain any retraction from M. de Cassagnac, he had killed him.

"Did you hear the shot reports?" he was asked.

"No, I do not remember," he replied, "I was doubtlessly too much preoccupied to give attention to them."

"Are you certain that you have killed M. de Casagnac?"

"It is said that he is not dead, but he must be very badly wounded," was his reply.

As is here seen, he persisted in his delirium, though less firmly than at the moment of his arrest. He gave numerous details of his tastes, habits and friends. He pretended to have no family, or any relations outside the house of the Prince. On the morning of January 26th, his aspect had notably changed, and we witnessed a complete return to reason. It was, therefore, possible to us to come at the truth.

It is true that he is the son of a military man who was assassinated, but it is not true that he has no family relations; he has brothers and sisters. It is true that he served in the army, and that he was in the Mexican campaign, but it is altogether false that he ever belonged to the house of Napoleon. It is true that he holds Bonapartist opinions, but he never was in the service of Col. Brunel. He was a commercial traveler, and he represented an important house in Paris; this explains the long absences of which he spoke.

On his way back from Greece, he came through Naples, where he learned that Gambetta was dead; he remembers having seen the flags of the ships at half-mast. Continuing his journey he reached Paris, and witnessed the funeral on the 6th of January. We are particular on these dates, because they prove the perfect integrity of his memory before the crisis.

He had lodged at a hotel, in which he was occupied tranquilly with his business, without troubling himself with political occurrences. On the 15th of January he had given an invitation to one of his friends, which could not be availed of because of heavy rain. This is the last exact remembrance he has preserved. From this day onward there is a blank, a dark space in his recollections, as if some pages had been torn out of the book of his life. All this portion of his existence remained buried in

utter darkness until he awoke from his trance, in a house full of lunatics; he then became perfectly conscious of his position, and found that he had been committed as insane to the asylum of Ste. Anne. This greatly abashed him. He now acknowledged that the name he had given himself was false, and that there was not a word of truth in the tragic narration of his interview with M. de Cassagnac. [Ball on Mental Medicine.]

This man had a prolonged dream; he was like the sleeper who awoke after a thousand and one nights.

What in reality is the essential character of a dream? What was the central point of the imaginary dreams presented to us?

The axis of a dream is hallucination; the dreamer is always an hallucinationist, and the hallucinations of his dreams have always a neatness of contour, a precision of details, not to be met with, unless very rarely, in the waking state, nor even in the confirmed insane.

In the second place, hallucinations of sight hold, in dreaming, an extraordinary preponderance. Touch, taste and smell may sometimes intervene, but hallucinations of hearing are extremely rare; this is precisely the opposite of what we observe in mental alienation.

"A dreamer will be present at a sitting of the court; he will *see* the President, the Court, the public and the witnesses, and he will take in the meaning of their discourse, but the meaning reaches his mind without the voice of the orator being heard." [Ball.] A dreamer sets out on a journey; he *sees* the train that is carrying him, the people that fill it, the rolling of the wheels, but all goes on without noise; he *sees* the whistling of the locomotive, but he does not hear it. In the patient of Dr. Ball, whose case we have just been citing, all these characteristics are met with. He *saw* M. de Cassagnac, he directly reproached him, but he obtained no reply. He fired six bullets from his revolver, but he heard no report; the victim fell without uttering a word or a single cry.

Absence of fear is another important character of

dreaming. Judgment being suspended, the most extravagant acts are exhibited before our eyes, without exciting any surprise. Finally, abdication of the normal sense is a dominant character of this state. We all have remarked, in dreams, a more or less criminal existence, without experiencing the least remorse. Here is one example among many: Carpenter relates the case of a man who was profoundly religious, but afflicted with dreams that filled up his nights. He committed forgeries, robberies and murders without feeling the least remorse of conscience.

That singular state in which the dream projects its shade into the awake state is far from exceptional. Carpenter relates the case of a young lady, "in which the recollections of the dreams were so intimately mixed with the impressions of the day that she never dared to affirm an act through the fear of having only dreamed it." Ball gives us the case of a terrible bouncer (*embus-téro*) whose perpetual dreamings extended into the domain of reality and he passed his life in relating imaginary acts to such a point of incredibility that not a word he said could be believed. One day, for example, he left his wife, under pretext of going to take part in a *concourse*. Some hours after he came home, and spoke of the theme which had been discussed, and the manner in which it had been treated. He discussed the probability of his triumph, and he was full of hope. On the following morning a friend when he was relating his *efforts in the presence of his wife*, set him right, by proving that no such *concourse* had taken place, and that all he had told was absolutely false. We assert, that, in our patient, dreaming and hallucinations depend upon the same cause. In fact the dream, which is the type of the hallucination of sight, is sometimes its exordial, or premonitory form, and just as the former may be prolonged during the awake state, and may be imposed on the sensorium as a reality, inversely the impressions which strongly affect the mind and leave their foot-prints on the memory, may be reproduced in the form of hypnotic hallucinations.

Ball relates in the case of Mehemit-Ali, Pascha of Egypt, a phenomenon of this sort, which is evidently an eloquent demonstration of the idea we have been endeavoring to convey:

"One day, in a combat, Mehemit-Ali allowed himself to stray into the midst of the enemy. Separated from his own soldiers, and surrounded on every side, he was on the point of destruction. He succeeded, however, in escaping safe and sound, but the impression made on him, in the moment of peril, had been so deep as to leave its foot-marks. For a long time after the occurrence he experienced at the moment of falling asleep a singular hallucination; in the midst of the silence of his palace, he had, at the moment of dropping asleep, a singular hallucination; he suddenly heard loud shouting, he exerted all his forces as a man attacked. This lasted but an instant; it was the reproduced scene of the fight."

The mental state of our patient, Ibarra, is introduced as a moral agony, an indefinable malaise, and so to say, a *virtual* terror which merely awaits an occasion for its manifestation. "It always seems to me," he says, "that some great calamity is about to happen to me."

The picture of hysteria, in this case, is complete; with its stigmata, its spasmogenic points, and its attacks divided into the four classic periods, perfectly well marked. He has complete sensorial and sensitive hemi-anæsthesia on the left side. The visual alteration is characteristic, the circle of the blue is notably restricted and it is within the red. The hysterogenic points are observed on the testicle and below the right nipple. Prolonged excitation of these points represses the attack only incompletely. This is initiated by a fit of suffocation, followed by the sensation of globus, and the phenomena of caphalic aura, ringing in the ears and throbbing of the temporals. The epileptoid period is short, but the succeeding one, the period of clonism, as Charcot says, that of sulutations, is typical, and the distinct attitudes, as, for example, in the arc of a circle, could not be more character-

istic. In the third period the patient expresses himself in language which stands related to hallucinatory disturbances of vision. Finally he regains sense, sobs a little, sometimes weeps, and comes back to his normal state. He has never bitten his tongue in the attack.

He suffered the first fit eighteen days after the railway catastrophe, and he has now had twenty-two repetitions. The treatment with the bromides and hydropathy, in the form of the douche, has had no effect. The constitutional state is worse, without any modification of the neurosis. We have prescribed tonics and static electricity. According to Charcot this agent excels in its results all others employed in similar cases. I think I have said enough to show that we have here a case of hysterio-epilepsy, with mixed crisis in man.

Criminal Responsibility.

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A GREAT effort is making all over the world, particularly in Christendom, by the metaphysicians or aprioristic philosophers to prove that every criminal is responsible for his acts. They are led to this conclusion because they are ignorant of the physiology of matter, consequently ignorant of its pathology and teratology, in fact they are ignorant of all the laws of nature by which all matter is governed and controlled.

The true physicist, or natural philosopher, takes a different course, his studies are nature's laws and forces, and how these laws and forces govern the conduct or motion of all matter, whether it be organic or inorganic, animal or vegetable, and even physicists are only beginning to learn what Darwin's investigation has led to, viz: how fundamentally alike in their vital processes are to be found animals and plants, and the unconscious influence of the forces of plant organs, upon the forces of animal organs, or the forces of animal organs upon plant organs. It is therefore impossible for the two classes of society, the aprioristic philosopher and the physicist, or natural philosopher to ever agree, as to the question of man's responsibility. The former maintains that the criminals are responsible, if, in accordance with their idea, they know right from wrong, and are not insane. The latter maintains that all criminals are such, because they are either insane from pathological cause, or fools from teratological cause, and consequently not responsible. And that the only persons who are truly responsible for their conduct, and who are never guilty of crime, are the physiological men. The man who is not only perfectly evolved,

but perfectly developed, consequently he is an intellectual, moral man. No use these two classes of society ever discussing medico-legal questions, because it is impossible they ever could agree and hold the opinions they do.

No doubt but that society at large is in a very wretched state, because, in reality, the smaller portion of it is developed and physiological, consequently moral; and the greater portion of it is undeveloped, or is pathological, consequently immoral and, generally, criminal. And in reality the moral class has to defend itself against the immoral criminal. This shows the reason why crime, immorality and insanity are on the increase—and punishment is on the increase also.

It is because of this we have so many fools and insane persons *hung*, or otherwise punished according to the extent of their crime.

Now how is society to be amended?

It must be borne in mind, that as far as we know, that for millions of years men have been teaching one another, that they have been instructed how to live by a supernatural power that created a natural power; this teaching has been always undergoing all sorts of changes. For the last nineteen hundred years it has been in part Christian, and the instruction of Christians have always been undergoing change. And the greatest envy, hatred and malice for each other exists in the present day, all religions condemning other religions, as shown in England in the present day, as exemplified in the House of Commons, when the opponents of Mr. Gladstone seemed to have actually gone mad; never has there been a greater effort for the different grades of Christians to govern society, than in the present day, and the consequence is, that because of their organisms, they are increasing in immorality and crime.

Therefore, in all Christian countries, there is an increase of insane asylums and prisons. Never did insane parents murder their children as they do at present, because the majority of them are known to be religious maniacs;

never was there much more in chastity and sexual impurity than at the present day by so-called Christians; worse than under pagan Rome or Greek philosophy, and every physical scientist knows that the Jewish females are more chaste than the Christian females, because the former give better obedience to the natural moral law, as laid down by Moses, than the latter do to the same law, as laid down by Christ. The reason is that few Christian teachers ever recognize that Christ was a physical scientist and a natural philosopher. They forget that he said "In heaven there was neither marriage nor given in marriage," and the thousand different Christian religions unite with all the political fools in calling the natural philosophers infidels. The social order between Jewish females and Christian females differs very much, the former, except with their husbands, sons and brothers never associate alone with men, never even walk the public streets alone, even with their own brothers-in-law or their religious teachers, and men and women do not even sit together in the synagogue. Whereas it is well known that Christian females are not so cautious. They will receive quite private visits from gentlemen, whether they are married or single, particularly, if they assume any particular form of religion, and it is quite common for ladies, after spending nights at parties, to allow the gentlemen they have danced with, to see them home at all hours of the night, often resulting in the most gross immorality.

And who are the dishonorable and dishonest men of the day? The men who are the most public in their religious actions. The men who would not enter into any amusement, even to sing a song on Sunday, will rob the government, the banks, or any public institution, or seduce his neighbor's wife or child, while they are reading the bible or visiting the sick.

Why has there such a social change taken place within the last sixty years? Because of the breach of nature's laws, and replacing them with false religion. There is an increase of teratological folly and gross

immorality. Are the majority of the marriages in the present day for love and honor? Not a bit of it. Do the majority of the mothers of the present day devote their time with the greatest pleasure to the constant care of their children, that they may grow up in good health and mentally well-developed and devoted to the obedience of nature's laws? Not much. Mothers sixty years ago, when natural mothers, generally speaking, did their best—mothers united with fathers in having their children properly married. But now look at marriages. No one speaks of heredity. The children of immoral criminals get married, of insane persons get married, of epileptics get married, and of inebriates get married. Far better death than such marriages. This is one of the great reasons of fools, maniacs and criminals.

What were the family social habits sixty years ago? Time was divided into three parts, eight hours for work, eight hours for sleep, and eight for food and pleasure. What were the latest pleasure hours abroad? Daylight. What were, as a rule, the latest pleasure hours in the house? Ten o'clock at night. What were the hours for sleep? From ten at night till six in the morning. Did girls and married women spend their evenings as they do now in large cities; walking along streets to look into shop windows, meet men, and accept and return their salutes? Not a bit of it. What are the pleasure hours now, particularly, in the large cities? Why nearly all night, particularly, by those people who can afford to sleep half the day.

Upon what is the education of the present day based? Ambition and avarice. It makes fanatical bigots of thousands, kills thousands, makes fools of thousands, and renders thousands insane. Too much has the *a priori* philosophy done for the human race within the last half century, and it is struggling to-day against natural philosophy, saying it is disloyal and deserving of destruction. What is to be done that there may be more intelligence, more morality, less folly, insanity, immorality and crime

in the human race? We must study nature's laws and live in obedience to them. To do this, we must learn the physiology of matter, for without this knowledge it is impossible to learn much of nature's laws.

Mother nature is not only our mother, but our school-mistress, and a stern and just teacher is she. If we study her laws, she teaches us how to use her forces; if we study them not, she teaches them to us by causing us to suffer; which is the penalty due to ignorance and the breach of her laws. Before we can know the forces of nature, it is necessary we first know the forces of matter. And what the phenomena or force of matter may be depends upon the structure of the matter.

All the matter of all the world, and all its surroundings is one, not differing in kind, but in degree. Organic and inorganic matter differs in degree, but not in kind, the difference being due to structure. But there is a difference in organic structures themselves, and also a difference in inorganic structures themselves, and wherever there is difference of structure there is, of necessity, difference in phenomena, functions or forces. Phenomena, functions or forces of structure in matter differs in degree, but not in kind, like unto matter differing in degree but not in kind, "One *star* differeth from another star in glory," but not in kind. "All flesh is flesh," differing in degree or structure but not in kind, and as all differ in degree or structure, so all differ in their functions, forces or phenomena.

As the structure of the *materia cogitans* differs in degree, so must its functions, forces or phenomena, and as these vary, so must motion or conduct. Therefore, as in the *teratological materia cogitans* the results of its forces are immorality and folly, so in the *pathological materia cogitans*, its functions, forces or phenomena are what is understood as insanity, and all its consequences, immorality and crime, differing in degree, as the matter differs in degree.

Intelligence and consequent morality also differs in

degree, as differs the physiological development of the *materia cogitans*, consequently conduct is the true guide to a man's intellectual status. It should be understood that teratological defect is mechanical defect, and that pathological defect may be either mechanical or chemical defect, both in organic or inorganic matter, and the function, force or phenomena of the matter, particularly, of the *materia cogitans* will in its characteristics depend very much as to whether the defect be due to mechanical or chemical cause.

It is because of these natural laws, that nature grades the human race into two classes of society, the intellectual moral class, and the insane, or fool, or criminal class. We might call the individuals of each grade types of a class. It is strange how many legal and medical writers, when they write of criminals, generally represent them as very intellectual persons and afterwards prove them immoral criminals, lunatics or fools.

I believe these writers not being physical scientists are incapable of drawing the line of distinctions between intelligence and talent. Now a man may be a talented man or even a genius, and be by no means an intellectual man. Few men who have not talent, or genius of some sort, although they be void of morality and intelligence, we know that some of the greatest political speakers in the world, and the greatest religious preachers in the world, although talented, were far from being intellectual moral men.

If the human race was in accord with nature's grading, our social order would be very different from what it is. The higher class would be the intellectual moral class, which would govern society in accordance with nature's laws, seeking the development of individuals, not their reformation by punishment, which has been practiced in legislation by the *a priori* philosophers for the last eighteen hundred years, and that without reforming society. If any one is a criminal, no power can reform them except a physical change takes place in their organization. There

are many physical changes in the human being, up to five and twenty caused by progressive development of organization, but after that age reformation of character is a rare affair.

If legislation was based upon physical science, or experimental philosophy, legislators would be forced to recognize the physical fact that man was naturally up to a certain age, a progressive animal, and that his intelligence and morality was due to physical development, and that his vices and folly were due to arrest of that physical development or an absence of it, or hereditary malformation of his mental organization. No physiological man is ever a bad man. Egoism or self-preservation is the first law of nature, and the second law of nature is to do others as we would have others do to us.

The intellectual moral man, in virtue of the law of egoism, has the undoubted right to protect himself against the criminal that would destroy him. Even to destroy the criminal for self-preservation, but for no other reason. The intellectual moral society could do the same with the immoral criminal class, but only in self-preservation, because of nature's second law, a truism to do to others as we would have others to do us.

How is immorality and crime to be arrested?

They never can be arrested till the physiological, intellectual moral class of society, is sufficiently large and strong to rule them, not to punish them, but separate them from the moral class. Keep them under observation, make the best possible use of them, and above all things not to allow them to procreate. For the greatest evil that the human race has to contend with is the procreation of the immoral and criminal class of society. I fear it will be a thousand years before this change will take place in society, but it will succeed as natural philosophy triumphs. Mankind will learn to do right because it is right, not because he fears punishment or hopes for reward.

Perhaps society, on the whole, never was so intellec-

tual, moral and civilized as at present, and that because of the natural laws of development, natural, not social, selection and the survival of the fittest. It is true that that there is still much crime, vice and immorality, and that the vicious criminal class of the present day have been aptly termed, "an organized hypocrisy." Nevertheless society in the past was, perhaps, more immoral because there were fewer, physiologically developed persons that constituted society, and consequently a greater member of undeveloped fools and criminals.

It is all very proper for to speak respectfully of our progenitors, and of the good old time "when George the Third was King." But it will not do for us to examine too closely into the morality of these good old times, or we may find that they were rather mythical. The world has become older since then, and there has been more time for development; and it is now that intelligence, morality and social order are at their best, bad as they are; and that they are still at a very low level no one can deny. Far below what the law of development will produce in time; for according to the natural law of progress forward we must go; there is no going backwards in nature. Our progenitors, when they knew but very little, must have learned from experience that mind governed conduct, but they did not know that mind was the phenomena, function, or force, of psycho-physical matter, the *materia cogitans*, consequently, that mind must be what matter made it. Consequently, as mental matter differed so much in different men, there were many men of many minds. Our progenitors did not know that there were a thousand millions of cells in the human brain, that contained these mind forces, and which under certain stimuli discharge them, sometimes for the controlling of motion, which is conduct. These discharged forces are conducted by some of the outgoing nerves, to the different structures of which the human frame is composed, by means of molecular motion which travels at the rate of two miles a minutes. These

brain cells are in virtue of their organized structure the source of these forces, a fact proven by the difference, anatomically and physiologically, between the infant and adult brains, and to physiological and teratological brains when they are developed. These cells as they discharge their accumulated forces are self-recuprated, like other structures, by food and rest, and the forces are borne to them like unto all other nerve centres from without by means of the ingoing nerves. Here there is molecular motion, as well as in the outgoing nerves. Rotatory circulation through the nervous system is always going on by means of molecular motion, which makes man an integral part of the one matter, from which all nature's forces are derived, the forces that form all motion, causing man's conduct, according to his physiology, to be either intellectually moral or a teratological criminal fool.

Man always has been, and is even now enveloped in a cloud of mystery. He has been to himself the greatest of all mysteries; never been able to explain to himself his rapid change of thought and of desire, and of what little, if any, control he has over either the one or the other.

And why is man thus mystified? Because of his ignorance of natural laws, because of his ignorance, that for every mental effect there must be a physical cause.

Thousands of occurrences that take place every day, producing disorder in our social order, are to us mysterious and unaccountable, because of our ignorance of nature and her laws, a knowledge of which laws would at once clear up the mystery.

We now know the physical truths that animate and inanimate matter; organic and inorganic matter, animal and plant, are each, one and all, influenced to a greater or lesser degree by unconscious as well as conscious forces. When conscious to man by means of any motion, man recognizes cause for effect; but when unconscious by means of molecular motion, man can be ignorant of cause for effect.

If any one doubts of unconscious forces in nature and their effect upon animal and vegetable organisms, structures and tissues, let them but consider of contagious and infectious diseases, and of how we are all influenced for good or evil by atmospheric changes, even the changes that take place between night and day, sometimes quite independent of locality.

Or let them consider the wonderful science of photography, and their doubts will be at once removed. The photographer by means of a camera obscura, and through the medium of a ray of sunlight, will in a moment of time stamp the likeness of a thousand objects, both animate and inanimate, upon a piece of paper, or the picture of a flash of lightning as it passes through the atmosphere.

The effects of contagious and infectious diseases, atmospheric changes and photography are examples of unconscious forces acting upon organic and inorganic matter, upon animate and inanimate objects; producing physical changes in all. Knowing these physical truths, who can say what were the unconscious forces that, acting upon mind-matter, made in a moment a sane man an insane man, or changed the intellectual moral man of yesterday to the criminal fool of to-day. Or, who will hold responsible for his acts the living, moving, integral portion of matter, whose conduct or motion is every moment of his existence influenced by unconscious forces, as well as conscious forces that he cannot control?

It is no wonder that the mind of man should be such a mystery, when we consider our ignorance of nature's laws and forces. But now we know that mind is not entity, but the functions, phenomena or force of the most complicated organic animal structure, the mystery should be solved. But how is this to be done? By a more complete knowledge of the forces of nature, that act upon mind matter, both consciously and unconsciously. And this knowledge can only be obtained by a better study of physical science, particularly of the

physiology of matter. Such may lead to a change in our whole social order, even to the food we partake of and the drink we use, as well as the clothing we put on and the exercises and pleasure we partake of.

It is the very nature of man as he increases in physical development to search after knowledge. This fact is observable in every child as it advances in age and development. But the desire for knowledge has never yet been gratified, nor will it ever be, till all systems of education are based upon physical science, which is natural experimental philosophy.

Man, naturally, requires contentment and happiness, and he never will be content as long as he is left in a state of mystification of nature and her laws. Therefore, it is that development in the present day is causing such a thirst for knowledge.

All we have from which we can be educated is matter, in some degree, and its phenomena or forces. This is nature, and the human race wants to know all about it, and, unconsciously, this is what all society is struggling for. True all don't know that fact, nevertheless, it is the force that is urging them to the thirst for the knowledge of nature and her laws. Peoples struggling for justice and social order, which they have never yet found, are unconsciously struggling for natural classification and legislation based upon nature's laws; for it is only with such a legislation society can ever be treated with justice and correct social order. The time is surely coming when societies will govern themselves in accordance with nature's laws, and then there will be intellectual and moral societies.

Nature makes the study of her laws so variable that it never tires, fatigues or exhausts her students, and so pleasurable that it never palls upon their senses. Nature's students, from the peculiarity of their labor, develop their psycho-physical organization, and consequently their inhibitory intellectual nerve force to bridle their emotional organism, and keep their forces in equilibrium. These:

are men of courage, and while law abiding, have the courage of their convictions, and are not afraid to protest against laws that are antagonistic to the laws of nature, being to themselves a law to do right because it is right, not because they fear punishment or seek for reward. Men who can take no interest in political parties, or political strife, seeing that all political parties of all nations are acting contrary to nature's laws. Yet they are the stamp of men that nature will in time bring to the front to replace the metaphysical, or *a priori* philosophers to legislate for the good of humanity in accordance to nature's laws.

Dr. Edward Zeller, in his outlines of the history of Greek philosophy, makes the following statement: "According to Socrates it is not merely impossible to do right without knowledge, it is impossible not to do right if what is right is known. For as the good is nothing else than that which is most serviceable to the doer, and every one desires his own good, so it is inconceivable in the opinion of Socrates, that any one should not do that which he recognizes as his good, no one is voluntarily bad. In order, therefore, to make men virtuous, it is only necessary to make quite clear to them what is good; virtue arises through instruction, and all virtues consist in knowledge."

No one can doubt the correctness of the great views of the great philosopher, but he should have added the physical fact that it is only the physiologically developed man that is capable of doing the good after he has recognized it. To be able, however, to recognize the truly good is a great proof of a physiologically developed man that is capable of doing the good after that he had recognized it. After all, however, when all that can be said has been said, the fact remains that conduct is governed by organisms, and that every man is what his physical organization makes him.

What then is to be done to teach society of responsibility? Let all who are capable learn all they can of

nature's laws, and live in obedience to them. Let them do all they can to have children grow up well-developed, physiological men, and let them use all their power to have schools established that will only teach physical science or natural philosophy. Let all the existing physical scientists take all the means within their power to instruct all society in natural philosophy, but let them not trouble themselves to hold controversies with the *a priori* metaphysical philosophers. Let them remember that since Christ himself taught physical science, or natural philosophy, that the majority of the human race has rejected it with all their force till now, consequently the terrible, non-intellectual, immoral criminal state of the human race, and the absurd, tyrannical laws that govern the world, and consequently the low knowledge of physical science, of the medical profession, which has led it, for centuries, into poor empiricism, neglecting to learn, that for physical effect there must be physical cause, which can only be known by the constant study of the physiology of matter.

When society is composed of chiefly physiological men, and that all are educated in schools of physical science, and brought up natural philosophers, there will be no difficulty in defining who is responsible for his acts.

The Phenomena of Suggestion in the Hypnotic Sleep and After it.*

A REVIEW.

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FEW special states of the nervous system present such means of studying cerebral automatism, in its various manifestations, as are afforded by the hypnotic state. The hypnogenic stimuli cause suspension of voluntary and conscious activity, but they do not always abolish the psycho-sensorial functions; rather, indeed, in certain experimental conditions, and in some persons, they induce in the brain such a state of hyperexcitability, that the slightest disturbances suffice to awaken its functional energies.

The hypnotised individual resembles an automaton, a mere living mechanism, that responds blindly to the stimuli received from without, and it is because of this peculiarity that, by means of appropriate excitations directed to the various apparatus of the senses, there may be caused, at the will of the experimenter, an innumerable series of phenomena, from the most simple to the most complex, in every sphere of cerebral activity. These states have been designated by the generic term of hypnotic suggestions.

I.

It was already known from the studies of Braid, that various attitudes, imposed on the members of a hypnotised subject, caused corresponding emotional expressions in the physiognomy. For instance, by putting an individual into the attitude of prayer, of threatening, of ecstasy,

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pleasure, suffering, etc., etc., it was observed almost immediately that the countenance became changed, and expressed most characteristically these different states of mind. The attitude of the body, therefore, possesses a suggestive action; it acts on the brain as a sensorial stimulus, consequent on the modifications determined by it in the muscular system.

Charcot and Richet by availing of the peculiar neuromuscular hyperexcitability of hysterical subjects, during the hypnotic lethargy, studied the influence of the physiognomy on gesture, and observed that by impressing a definite expression on the face by means of the faradic excitation, the rest of the body also entered into action and assumed a corresponding attitude. Thus, according as the frontal muscles, or those of the eyes or cheeks were stimulated, it was seen that not only the face, but also the head, the trunk and the limbs assumed a special gesture, which was completely indicative of astonishment, anger, sorrow or joy, provoked in the physiognomy by excitation of the muscles.

II

Among the apparatus of the senses, that of *hearing* is the one by means of which these may be provoked during hypnosis, the most various and complete suggestions. If the experimenter grinds his teeth, whistles, claps his hands or takes a few steps, the hypnotised person repeats exactly the same movements. The paralytic phenomena which may be provoked, both in the domain of motility and in that of sensibility, by means of verbal suggestions, are most singular. By suggesting to a hypnotised subject the idea that he is paralyzed in a part of his body, it is observed that this part has lost the power of moving.

Pitres said to a woman who was in the cataleptiform state, "You cannot move the right arm," and paralysis of this member was instantly verified; the woman could skip and walk, and move her left arm in all directions, the right arm alone was motionless and no longer obeyed the

will. He then said to her, "Your legs are paralysed, they are dead and cannot bear you up," and behold! she sank down, and her limbs were flaccidly paralyzed. Charcot, Richet, Bernheim and Feré have recorded many observations of paralyses provoked by suggestion. These paralyses may be made to disappear with the same facility as they are provoked, by suggesting to the patient the idea that he is no longer paralyzed.

Charcot has demonstrated that these *suggestive* or *psychical* paralyses frequently present objective characters, which warrant their approximation to those called organic; there is, in fact, observed in the affected limb, complete abolition of motility and often of sensibility, also, likewise exaggeration of the tendon reflexes, spinal trepidation and loss of muscular sense. Richet and Gilles de la Tourette observed a modification of form in the muscular contraction provoked by galvanic excitation. The myographic curve ascended to double the height shown before and after the paralysis; further, it was much lengthened and it terminated sharply in a line of rapid descent. Besides, vasomotor disturbances were noted in the paralyzed member.

Suggestive paralyses are presented, as are the organic, in two forms: The paralyzed muscles are completely relaxed and flaccid, or they are rigid and in a state of tonic contraction, or contracture.

The motor paralyses which are provoked in hypnotised subjects by means of verbal suggestion, have a perfect counterpart in those first described by Russel Reynolds, and more recently by Erb, in which, under the influence of an idea or of disturbed imagination, very grave disturbances of sense and motion were noted. Reynolds relates the case of a young lady, who lived alone with her father, who had been ruined in business, and became suddenly paralyzed. She gave lessons away from home, and for economy always went on foot, walking very hastily so as to have the more time to devote to her father. By little and little she began to find pains in her legs, and then she was

seized with the fear of becoming herself paralyzed. Under the influence of this idea, which finally became persistent, she found herself first constrained to stay within the house, next not to go out of her own room, and finally not to leave her bed. Her lower limbs were debilitated, and presently became completely paralysed. The paralyzes passed off in a few days, under a purely moral line of treatment. Reynolds reports other cases similar to the preceding, and he believes that for the manifestation of this imaginary malady, it is simply necessary that the attention of the patient shall be directed to some definite part of the body, and to certain morbid forms. Erb obtained, in his cases, a sensible improvement under the influence of a well-directed moral treatment.

In the analogy between the paralyzes provoked in hypnotism, and the spontaneous psychical form, we find a confirmation of the advantages that may be derived from experimental hypnotism, as applicable to the study of certain phenomena presented in normal and pathological conditions of the nervous system.

By verbal suggestion we can provoke, not only a paralysis of one-half of the body, or of a limb, but also, as Binet and Feré have observed, the loss of certain special movements directed to a certain purpose, *e. g.*, those necessary for writing, sewing, etc., etc., whilst all the other movements remain intact. We may, in certain cases, localize the muscular impotency by suppressing exclusively the movements requisite for writing a certain letter of the alphabet or a certain figure.

By acoustic suggestions, we may so act on the apparatus of sensibility as to provoke different forms of anæsthesia. We have already said that paralyzes of sensibility is often associated with motor paralyzes, from suggestion. For example, by suggesting to a subject under experiment the idea that his whole body, or a part of it, is insensible, an anæsthesia is immediately provoked. In hysterical anæsthesia it is easy to obtain, by hypnotic suggestion, the transference of sensibility.

Pitres suggested to a hypnotic patient that she was no longer hemianæsthetic on the left side, but had become perfectly sensible on this side and insensible on the right. It was immediately observed that she felt acutely the slightest puncture on any part whatever of the left side of her body, but she gave no sign of feeling the least pain from punctures made on the right side. Loss of the cutaneous sense may be limited to a certain object by means of suggestion.

The special senses also undergo the influence of verbal suggestion during the hypnosis; it is easy to provoke functional paralysis of all, or of some of these, on both sides of the body, or, on one side only. We thus obtain blindness, deafness, monolateral or bilateral loss of smell, by simply awaking in the patient the idea that he is blind, deaf, or without the power of smelling. In certain cases we may obtain the partial suppression of a definite group of perceptions, e. g., those proceeding from the sight of a particular person or object, the sound of a bell or a clock, etc., in consequence of which the person under experiment fails to see that person or object, and to hear the sound of the bell, yet, all the other visive and acoustic perceptions remain normal. In like manner we may suppress the sense of taste or of smell of a particular savor or odor.

The extreme facility with which the experimenter may, by his own will, modify the sensorial activities of a hypnotised subject is still better shown in the illusions and hallucinations which are provoked during hypnosis. We have, in a former work, treated of these phenomena, but, considering their great importance, it may not be superfluous to allude to them here. After a simple assertion of the experimenter, every object may become to the hypnotised the point of departure of a false perception; he will be made to believe, on presenting to him a glass of water, that he has before him a liquid of most pleasant odor, as that of roses, violets, etc., or a disagreeable one, as that of ammonia, etc.; we may, in

like manner, produce, by verbal suggestion, an illusion of taste and make him realize a bitter taste from sugar, by telling him that it is quinine, or, *vice versa*, a sweet taste from quinine given to him as sugar; he may be led to feel convinced that the aspect of persons has changed, if they have been spoken of in names not their own; he may be persuaded that he is smoking a cigar, though a stone has been put into his mouth, etc., etc.

Hallucinations of all the senses may be provoked as easily as illusions. We may reproduce before the subject hallucinations, images of his acquaintances or relatives, by simply affirming that they are before his eyes. A patient of Pitres, to whom it was suggested that she heard a military band passing, replied that she heard them playing a lovely march, and she seemed to be absorbed in listening to the sounds of the drums and trumpets. When the names of the Madonna, or the devil, or flowers were mentioned to her, she instantly saw these objects, and, according to the hallucination of the moment, she kneeled to adore the Madonna, or she fled in terror from the devil, or acted as if gathering flowers. In like manner there may be awakened in the hypnotised subject, olfactory or gustatory hallucinations, which will be manifested in special reactions related to the perceptions received. But there is yet more. The hallucinations may be localized on one side only, or they may be provoked on both sides, but under different forms: *e. g.*, the image of a flower may be provoked in one eye, and that of an animal in the other; the image of a different person may be provoked in each eye, or a different sound in each ear, as that of a watch on one side, and that of a bell on the other, etc., etc.

From the peculiar property of hypnotised individuals undergoing the influence of suggestions, we may readily understand how easy it may be to create by this means some little somnambulistic scenes, more or less complicate or lively, according to the persons, or to their mode of reacting to the suggestion. Here are a few samples, as

they have been presented by Dr. Bottey. He says, "We led her into a public garden, where she admired the swans gracefully swimming in the ponds. Presently she heard military music, which she applauded when the piece concluded. He then caused her to eat imaginary pastries, and afterwards persuaded her they had been poisoned; she suddenly made efforts to vomit. To M. L—— we said that she was in paradise, and that she was beholding angels flying around her. Her physiognomy suddenly lighted up, she fell on her knees, and stared upwards. We then suggested a change of scene. The devil, all red, wrapt in blazes, was approaching her in great fury. She instantly arose, and her face showed intense terror; she flung her body backwards, stretched her arms out in front, as if to drive away the terrific vision, and she cried out, 'Oh! I burn, I burn, chase him away!'"

Bernheim, on a hypnotised man of 44 years, desired to discover how far the power of suggestion might go, and he one day provoked a truly dramatic scene. "I showed to him," he writes, "against the door, an imaginary person, telling him that the fellow had insulted him; I gave him a pretended dagger (a metallic paper-cutter), I ordered him to kill him. He dashed at him and plunged the dagger into the door, then he stood still, with his eyes fixed, and trembling all over! 'What have you done, wretched man? See, he is dead!' The culprit was led into the presence of a fictitious judge, my student."

"'Why have you killed this man?'"

"'He insulted me.'"

"'Did anyone tell you to kill him?'"

"'It was Monsieur Bernheim.'"

If we pass from examination of the phenomena provoked by verbal suggestions in the sphere of the motor and sensorial activities, to the study of the psychological phenomena, properly so-called, which are obtained in persons hypnotised under the influence of suggestions, we shall find ourselves present at a series of truly singular facts, which are of special interest to the

psychologist. Richet has described, under the term, "objectivation of types," a complex phenomenon, which consists in "an amnesia of personal identity," in the place of which the personality of some other individual is substituted. If, to a hypnotised person the idea is suggested that he is changed into another, and that he is no longer himself, he speaks and acts as if this change of personality had really taken place; he forgets his own age, his own sex, his own social position and his own financial condition; he loses the notion of his own existence, and he talks, thinks and acts like the type that has been suggested to him. In order that this *transformation of personality* may be effected, it is merely necessary that a word may be pronounced with a certain authority.

For the purpose of illustrating this phenomenon, we shall relate a few examples which have been described by Richet himself:

"I said to A—, you are an old woman. She appeared changed into an old woman; her aspect, her gait and her sentiments were those of an old woman." The personality of Madame M— became transformed into that of a rustic, an actress, a general, a priest, and a nun. In a very sensible man, placed under hypnotism, four transformations of personality were obtained. He became a priest, a woman, an aged man, and an invalid. But what is still more striking in these phenomena is the complete transformation of sentiments. A person of a timid nature becomes daring, if a daring person has been objectivated to him; a religious person becomes irreligious, when one without religion is suggested to him.

At first sight, these facts appear to be almost supernatural, but in reality they are not marvellous, unless, for the facility with which they are produced, for they have their counterpart in other psychological phenomena, which are manifested in normal conditions (as in dreams), and in pathological conditions (as in insanity)..

In hypnotised subjects *total or partial loss of memory* may be provoked. Thus, to an individual to whom it was suggested that he had forgotten his name, it became impossible for him to recall it when he was asked to give it. When he was told that he no longer remembered a certain person whom he had very well known, it was found that he had forgotten him. In a similar way, loss of memory of words, of numbers, or of the names of things, may be provoked, and there may be produced a series of phenomena, such as are to be observed in persons affected with disorders of memory, consequent on injury to the brain.

III.

The phenomena of suggestion, which may be provoked during hypnosis, by acting on the organs of sight only, are not so complex or numerous as those which are provoked by acoustic excitations. Hearing represents the master path through which stimuli find their way to the development of suggestions the most diverse, both as to quality and quantity. Among the suggestions of visual origin, the phenomena of imitation merit special notice; these are in their nature perfectly analogous to those provoked by auditory stimuli. On executing any movement whatever before a hypnotised subject, he repeats it automatically. The movement which he sees executed suggests to his brain the idea of an identical movement. But it is singular that the subject comports himself, as the image of the experimenter in a mirror. Thus the movements of the experimenter with the left side of the body are responded to by the subject with movements on his right side. [Richet.]

By a slight expressive gesture, the attention of the subject may be directed to some object, and he may be made to execute a series of acts of complex appearance. In this relation Pitres details some experiments, as follows: "I pointed my index finger towards a hat on the

table; the subject took the hat into her hands. I pointed to her head, and she put the hat on it. I turned her attention towards a drinking glass and a vessel of ptisan before her. I suggested to her, by slight gestures, the idea of filling the glass and of drinking, and she did so immediately." If the subject fixes his eyes on those of the experimenter, whilst the idea is suggested to him that he cannot move away, it is then observed that he follows the steps of the experimenter. These phenomena, which some have described as the result of a special attraction of look (*prise-du regard*), are but the suggestions which are provoked in the brain of the hypnotised after visive stimuli; and it is in this manner we must explain a great part of those facts which the magnetizers describe as examples of *magnetic* transmission of thought.

Suggestion constitutes one of the means for provoking hypnosis, especially in those subjects who have several times been subjected to hyptogenic processes, and hence have become more susceptible. In certain cases it is sufficient to say to the subject, "sleep," and he falls into the state of hypnosis in a few minutes. In like manner, we may, by means of suggestion, obtain the passage from hypnosis to waking, by ordering the hypnotised subject, in an imperative tone, "to awake."

It is now proper to observe that hypnotised subjects are not all equally susceptible to suggestions; in some these phenomena are not provoked at all, in others they are produced with some difficulty; finally in others they arise promptly and briskly. But independently of individual conditions, the hypnotic state itself exercises a great, perhaps, the principal influence on the genesis of suggestions; and so it has been observed that whilst they are produced in the cataleptic, and more especially in the somnambulistic phase of hypnotic sleep, they are not obtained in the lethargic phase.

IV.

Hitherto we have been occupied with the suggestions

which are provoked during the hypnosis, and disappear on return to the waking state. We now desire to call attention to a series of phenomena still more singular than those yet described. These consist in the possibility of provoking, during hypnosis, suggestions which remain latent during the hypnotic state, and are developed, either immediately after waking, or in the wakened state a longer or shorter time after the hypnosis has ceased. Thus there may be suggested to a hypnotised subject all the illusions or hallucinations of the different senses, ideas, actions, or emotions, which shall not be manifested in the period of the magnetic sleep, but only in the awake state, and all these suggestions will be presented to the awakened person spontaneously, without his at all remembering who it was that provoked them.

Facts of this sort have been lately established by various observers, among whom we are pleased to note Richet, Charcot, Pitres, and more especially Bernheim, who has collected a large number of them. Their importance is such, especially from a medico-legal point of view, that we deem it proper to relate a few of them.

1st. *Suggestions of Acts.*—Bernheim gives the following examples: "I suggested to a subject, during the sleep, that after waking he would rub his leg and a sore thigh, that he would then get out of bed, go to the window, and return to his bed; all which he executed without doubting that the order had been given to him in his sleep. I suggested to P., one day, to put my hat, as soon as he awoke, on his head, to bring it to me into the next room, and put it on my head; he did all this without knowing why. I suggested to a youth, affected with insufficiency of the aorta, that in five minutes after being awakened, he would take up a book that was on his pillow, and read page 100. A quarter of an hour after this suggestion he awoke, and left me. In three minutes after this, I saw him at a distance take his book and read; he approached me and I saw the page was 100. 'Why are you reading this page?' I asked

him. 'I do not know,' he replied. 'I often read at random.' "

Pitres relates the following observation: "I put Emma asleep, and ordered her to turn her hands rapidly one 'round the other; she did so without any resistance. I then said to her that she could not stop the movement, even after waking. I awaked her by blowing on her eyes, and it was seen that the motion of the hands continued, and she could not leave it off. In order to stop it, I had to put her again asleep, and then to order her not to move."

But a singular fact is that suggestions of acts may be produced not only immediately after the hypnotic state, but after periods more or less prolonged. Bernheim writes of a certain S—, who came to him at the hospital one morning, thirteen days after having been put to sleep, in conformity with the suggestion then made to him. He said the idea had not been in his mind on any of the preceding days, but had entered it only at the time at which he carried it into effect. Suggested acts may, therefore, remain latent during hypnosis, and come into effect in the awake state, without the subject having the least recollection of the initial order, by virtue of which he acts.

2d. *Illusions and Hallucinations*.—Suggestions of illusions and hallucinations, provoked during hypnosis, may come into effect in the waking state. It is sufficient to say to the subject: "When you awake, you will have a feeling of insect bites on the foot, a sharp pain in one tooth, a sense of itching in the head; you will desire to urinate, to eat, drink, etc.;" and as soon as he wakes these sensations are realized, as they had been suggested to him. In like manner, hallucination of all the senses, from the most simple to the most complex, may be provoked. We present some examples from Pitres. He offered to a hypnotised woman a drinking glass which contained a mixture of wine, tisan, salt and pepper, telling her that it was excellent curacoa. She took the

glass, tried the contents, and showed that she relished it. "Now," said he, "you shall awake and drink the rest of the curacoa." Having awaked, she continued to taste the beverage, and said that she had never drank any so good! It is to be noted that this false appreciation of the quality of the liquid does not depend on any general disturbance of the gustatory sense. The sensorial illusion provoked by suggestion is limited to the object of the suggestion, whilst of all other disturbances the patient recognizes the taste correctly.

"We told M. L——," writes Dr. Bottey, "that when she would awake, she would find herself alone in her garden and would hear the birds singing around her, and after five minutes she would see a large dog coming, and would run away frightened." The suggestion was fully realized. Bernheim obtained equal results on a patient to whom he had suggested, during hypnosis, that on awaking he would see, in a dormitory of patients, a large dog in every bed, and he would find, at his own bed, a woman who wished to present to him a basket of strawberries, which he should eat. Again, a hysterical girl, on waking from hypnosis, saw a ring on her finger, a bracelet on her arm, and a beautiful fan ornamented with the pictures of persons known by her; another intelligent woman, not hysterical, had, in the awake state, hallucinations which had been suggested to her in the state of hypnosis; she heard military music in the courtyard of the hospital; she saw a drunken musician approaching her; he spoke to her and used abusive language, because of which she called the nurse, and ordered her to turn that drunkard out.

Pitres said to a hypnotised woman that in a few minutes after waking she would hear voices saying to her all sorts of disagreeable things, e. g., that she had killed her parents, that she liked to drink to excess and that she was a liar, etc., etc. She was awaked, and in a few minutes she showed that she had heard the voices that accused her, and she defended herself against them. In

order to cut short the scene it was necessary to put her again to sleep, and to suggest to her that no disagreeable word should again be spoken to her.

3rd. In certain subjects we may provoke, in the waking state, *general or special paralyses of sensibility*, suggested in the hypnotic state. Thus, there may be provoked, in a hypnotised subject, the suggestion that when once waked, he will not perceive a certain object, *e. g.* one of the persons present at the experiment. On waking it is found that this person has become invisible to the subject. In like manner, in accordance with suggestions made during hypnosis, there may be observed in the subject under experiment, tactile anæsthesia to a given object, paralysis of the cutaneous sensibility on one side of the body, or on a part of it, deafness to all accoustic sensations, or only to some of them. It is known that some hysterical persons instantly fall into a cataleptic state on hearing the sound of the *tam tam* (gong). On a woman belonging to this class, it was inculcated by Binet and Feré, during the somnambulistic state, that on awaking she would no longer see the *tam tam*, nor hear the sound of the blows on it. After waking she replied that she did not see the instrument, and when a great blow was given to it, she declared that she had heard something which she could describe only as a puff of wind in a chimney. The inhibitory suggestion was then suppressed, and the catalepsy was provoked by a blow on the *tam tam*, much lighter than the preceding one.

Relative to these anæsthesias, improperly called *negative hallucinations*, which are provoked in the waking state by means of suggestions made in the period of hypnosis, Bernheim reports many experiments of his own practised on various subjects of both sexes.

Sensorial illusions and hallucinations may also be suggested during hypnosis, which shall take place at a time more or less distant from waking. In such cases it is difficult to fix the hour, or the day on which the suggestion has to be realized. From some observations of Bern-

heim and Bottey, it is seen that the efficacy of hypnotic suggestions may be prolonged for some days, or even for some weeks. Bernheim relates an experiment in which the suggestions were realized after five or six days, and another in which the hypnotic suggestion took place after sixty-three days, in accord with the time established, without the subject, during this long period, having thought of the act suggested to him; it came into his mind spontaneously on the day he was to accomplish it. Bottey reports the following cases: "I suggested to G——, to ask from me at the end of eight days a flower which was in my button hole, which she punctually did; be it well understood that there was no flower, and the hallucination was therefore reproduced after eight days; nor in this time did the hallucinatory suggestion ever arise in the mind of G——.

4th. During hypnosis *fixed ideas* may be suggested, of *impulsive, irresistible acts*, which will spring up in the waking state: The subject who has received the suggestion, feels himself overruled by the ideas which have been suggested, and he executes the orders that have been given to him. Sometimes the individuals try to find a reason for what they do or think; sometimes on the contrary, they cannot explain the strangeness and the absurdity of the ideas and acts that arise in their minds. It is, however, to be observed that frequently they resist, in the waking state, the tendency which is impelling them to perform acts suggested to them in the hypnosis, especially when they are repugnant to good sense and good morals.

Through the influence of hypnotic suggestions there are obtained, in the waking state changes in the affections, character and psychical personality, as Richet, Bernheim and Pitres have observed in their experiments. Suggestions of visceral sensibility may prove persistent after communication during the hypnotic state; such as intense desire to drink, to eat, or to urinate, etc., etc.

5th. Paralyzes of motion also, suggested in hypnosis,

may be manifested in the state of waking only, if the suggestion has been made with this impression. Binet and Ferè relate the following experiments. W—— was under the somnambulistic sleep; it was suggested to him that on waking he would be paralyzed in the left hand. He was awakened immediately, and in a minute after it was seen that his left hand became hot, red, and the palm of it covered with sweat, and it was motionless; the reflexes of the forearm were exaggerated.

Pitres suggested to a woman that in the evening, after dinner, she would be suddenly struck with paralysis of the lower limbs, and so it happened. In like manner there may be produced in the waking state, paralysis of those muscles which are necessary for accomplishing a given complex movement, such as that of writing; also loss of the phonetic movements required in pronouncing a word or a figure (motor aphasia), inability to read a name (verbal blindness), or to write one (agraphia).

Some of the experiments of Binet and Ferè are very interesting, as showing that paralyzes induced in the waking state, after hypnotic suggestions, present in some cases, under the influence of a magnet, the *phenomenon of transposition*.

They produced in W——, by hypnotic suggestion, paralysis of the left hand on waking; they then held a magnet at a distance of two centimeters from her right hand. After a minute and a half this hand became completely flaccid and inert, whilst the left hand progressively resumed its movements and its normal temperature. To another woman it was suggested that she had forgotten the name of Dr. Ferè, whom she had known for many years. When she awoke from the somnambulistic sleep, it was impossible for her not only to articulate this name, but she was also incapable of reading or of writing it. She was, therefore, as to this name, affected with a complete aphasia. A magnet was applied near the right arm; in seven minutes a slight tremor was produced in the right hand, and she complained of a pain on the right

side of the head. An instant afterwards she pronounced "Feré," without hesitating, and she recognized the name under all forms. The magnet was removed, and she was requested to repeat the name; she repeated it a dozen times, and then said "Fery, Ferry;" presently she said she could not give the name. This experiment, which was repeated many times with the same result, shows, as the authors justly remark, that the suggestion determined the paralyses of the cellular elements specially adapted to perception, and to the articulation of words, and that the magnet, by carrying the functional energy into the right side of the brain, which, as is known, is not related to the apparatus of language, produced momentarily the functions of the left hemisphere, in consequence of which the patient was enabled to pronounce and read the name that she had forgotten.

From what has been said, it is seen that it is in the power of the experimenter to cause suggestions, provoked in subjects during hypnosis, to be developed as long as the hypnotic sleep continues, or to remain latent in this period, and arise spontaneously in the waking state, as soon as this is determined on or after the lapse of a longer or shorter period of time from the moment of waking.

It is difficult to state exactly the duration of the suggestions in the waking state; it is in general very short in first experiments, and becomes longer in proportion to the repetition of the experiments and to the subjects who have received the so-called magnetic education. In some cases the hallucinations would appear to have persisted for several hours, and even for two or three days. A complete anæsthesia of the left arm, provoked by suggestion, Bottey says, lasted forty-eight hours.

Suggestions which are manifested in the waking state pass away spontaneously, or after affirming to the subject that they have disappeared. In order to obtain this result it is sometimes necessary to reproduce the hypnotic state.

V.

After having examined the phenomena of suggestions, provoked during hypnosis, we should call attention to a fact specially noted by Bernheim and Bottey, it is this: The majority of subjects who have been hypnotised may, without being again subjected to the process, present *in the waking state* aptitude for the manifestation of suggestive phenomena. In some cases a few hypnotic sittings suffice to render an individual fitted to receive suggestions in the waking state. These suggestions are the same as we have already described for the hypnotic state, with this difference, however, that they are not always produced in the same subject so numerous as in the hypnotic sleep.

Among the suggestive phenomena of most frequent production in the waking state, we must include hallucinations which may last from a few minutes to several hours. The various species of sensibilities may be modified, abolished, or exaggerated in the waking state, at the will of the experimenter. In some subjects Bottey produced, by suggestion during the waking state, deafness, dyschromatopsia or achromatopsia on one side or on both. In a hypnotisable hysterical girl, affected with complete left side hemi-anæsthesia, Bernheim obtained, without the need of hypnotising, the phenomenon of transfer of the general and specific sensibility in the hemi-anæsthetic side. In many hypnotisable subjects, even not hysterical, suggestive phenomena are procured in the waking state. Silva observed, in an anæmic hypnotisable girl, that during the waking state she did not feel, in a given region, heat or cold, according as the absence of either was suggested to her. Suggestions of the specific senses (deafness and blindness), were also provoked in her in the waking state. Bernheim obtained in one of his somnambulists all the possible modifications of sensibility. If he said, "Your left side is insensible," he produced immediately an anæsthesia on this side; at another time he provoked, on the

same subject, a complete anæsthesia, which was so profound that his assistant one day pulled out five roots of teeth without the patient showing the least sign of pain. During this operation it was quite sufficient simply to say, "You absolutely feel nothing." On the same individual, without being put to sleep, there were produced besides, by suggestion, changes in the attitudes of the body, which continued for a long time, together with some hallucinations.

In the waking state the voluntary muscles may be acted on by provoking at one time paralysis, or again contracture in a special muscular group, of a limb, or of the entire half of the body. In this relation a fact should be mentioned, to which Prof. Tamburini and I called special attention in 1881, with respect to some muscular phenomena observed by us in a typical case of hysteric hypnosis; it was, that muscular hyper-excitability cannot be considered as peculiar to the hypnotic state, for we noted even in the waking state, during which it could be provoked, a strong contracture. Silva has confirmed this fact recently.

By means of suggestion we may cause the loss, in the waking state, of the knowledge of a figure or a letter, by asserting to the subject that he cannot read them, and that he has totally forgotten them.

From the extreme facility with which suggestive phenomena arise, and are manifested and associated in the hypnotised, and from the peculiarity conserved by some hypnotisable subjects, of evolving in the waken state, the action of suggestions, we may conclude that *cerebral automatism* forms the essential character of the hypnotic sleep, and it may also constitute a very favorable soil for the development of suggestions in the state of waking.

VI.

We shall now turn our attention to some very singular new phenomena in the field of hypnotism, which have been observed and described by Binet and Feré, under

the name of *psychical polarization*. It is known that, by the action of æsthesiogenic agents, modifications of sensibility and mobility are obtained both in physiological and pathological conditions of the nervous system. One of the most surprising effects of æsthesiogenesic agents consists in the transfer of some phenomena of sense and motion from one side of the body to the other; at other times their action is limited to the modification of some one or all of the various species of sensibility, in the zone of application, or in the corresponding half of the body. The study of these phenomena has been the subject of some of our labors, which we published in conjunction with Maragliano and the lamented Buccola, who has so recently been torn away from the world of science. Binet and Feré have proposed the term *polarization* to indicate the inversion of a functional state under the influence of an æsthesiogenic body. In studying the effects of the magnet in the grand hypnotism, they saw that the phenomena of polarization were obtained both in the sensorial and the motor functions and the psychical functions, and they made a great number of experiments in this direction, which are related in all the details in their work.

(a). *Motor-Polarization*.—The principal results of the magnet obtained on motility were as follows: 1st, a definite action (e. g., that of smoking a cigar) was substituted by a paralysis of the corresponding muscles. 2nd, a fixed attitude (that of prayer) was changed at first into a contraction of the limb in the same position (systematized contracture), followed by epileptiform movements in the corresponding part, and finally by a systematized paralysis. 3rd, a diffused contracture was substituted by relaxation of the muscles. 4th, a systematized paralysis was transformed into a corresponding movement. Example: the idea was impressed on a woman in the hypnotic state, that she could not move her thumbs. Then on applying a small magnet near the head it was seen in a few seconds that she executed the movement.

As was seen in all these cases, a motor phenomenon was replaced by means of the action of the magnet by a muscular state directly contrary. For some of the experiments this movement did not happen in an unmixed form, but was followed by a period in which the two inverse phenomena appeared and disappeared alternately.

(b). *Sensorial Polarization*.—By means of the magnet a provoked hallucination may be made to disappear, e. g. that of the sight of a bird, or the sound of an instrument, etc., etc. But along with the hallucination of a given object there is also suppressed the visual and acoustic perception of it, that is, a systemized anæsthesia exists. In fact it is observed that the hypnotised person, after the action of the magnet, does not see the *tam tam* that is presented, and the sound of it is not heard in catalepsy. The subject has, therefore, become blind and deaf to that instrument. The results of some experiments made by Binet and Feré are of great interest in the study of the action of the magnet on recollections and hallucinations. Whilst a woman, who was the subject of experiment, was in the hypnotic state, the recollection of a person known to her was suggested to her, and she was requested to describe the aspect, gestures, mode of speech and dress of this person. When the conversation had gone on for some time, the experimenter put a small magnet, without her perception, near her head. After a few seconds she tried to reply, but she had completely lost her recollection of the person spoken of, and she no longer knew what she was saying. This experimental amnesia is produced even if the person has been known to the subject for many years.

It is not, however, always exhibited in a distinct form from the first moment of its appearance. Sometimes the subject, after it has been produced, regains recollection of the person, then loses it, and so on alternately. If now we compare the anæsthesia of a recollection provoked by the magnet, with the disappearance of the hallucinations and sensations obtained by the same means, we

shall find a confirmation of the close analogy, already shown by other parts, between sensation, hallucination and memory. These three phenomena have a common basis, inasmuch as hallucination and memory are but the reproduction of sensorial representatives or images already acquired, which in their turn represent a faint copy of previous sensations. They are distinguished, as the above-cited authors justly observe, by the secondary states of consciousness that accompany them. In memory these states consist in judgments which place the sensorial image in the past. In hallucination and sensation the states of consciousness consist in judgments which locate the image in the world surrounding, in present time. As the real or the imaginary vision, is substituted, by means of the magnet, by an anæsthesia of the corresponding object, so the presence of a recollection is substituted by a sort of paralysis of memory. In fact by provoking, by means of the magnet, in a hypnotised person, loss of the memory of a given person; when this person is present the subject sees him, but does not know him.

The magnet has also a modifying action on hallucinations of colors provoked during hypnotism. It was suggested to a hypnotised person that all the objects in the laboratory were red. On being awaked she wondered to find herself in a red room. A small magnet was then applied behind her head, and presently she said she saw every thing green. There had succeeded to red the complementary color and grades. But the magnet provoked not only a simple suppression of the color—red, but rather an anæsthesia of this color, as it was observed that, if at the moment in which the hallucination of the red disappeared, some red cards were shown to her, she did not see the red color of them.

In summarising the characters of sensorial polarization Binet and Feré come to the following conclusions: The first effect of the magnet on a sensation, an hallucination or a recollection, is suppression; this is the most ap-

parent fact, the only one which is spontaneously presented to the eyes of the observer. In order to know the others they must be sought for. The second effect is the paralysis. Perception, hallucination and memory are substituted by a corresponding anæsthesia. Finally, the third effect is the production of a complementary phenomenon, appreciable only from color perceptions.

(c.) *Psychical Polarization.*—The emotions undergo a singular modification under the influence of the magnet. It was suggested to C——, who was in the somnambulistic state, that she would be very merry on awaking. She was wakened and the magnet was applied. She gazed around with an air of wonder; she smiled and said she was much inclined to laugh; suddenly she sat down and assumed an attitude of sadness. On another patient this transition from joy to sadness occurred in like manner under the action of the magnet, but the emotional change did not persist as in the preceding case; the merry phase and the sad succeeded for some time alternately. That the magnet exercises a real influence in these experiments is proved by the fact that the change in the emotional state is not at all verified where it has not been applied. There is, therefore an emotional as well as a sensorial and a motor polarization. The change of the emotional state may be associated with some impulsive phenomena. The idea was suggested to W——, in the somnambulistic state, that on being wakened she would feel a strong desire to cudgel F——. A magnet was placed on the floor near her right foot. The moment she awoke she stared with rage at F——, suddenly arose and made a slap at his ear, from which he had hardly time to escape. "I don't know why," she said, with violence, "but I have a great wish to fight somebody." In an instant, however, her aspect changed, and she assumed a sweet expression, and threw herself on the experimenter, saying, "I wish to embrace him." If we now compare the effects of the action of the magnet on hallucinations, with those on emotions, we shall

find a perfect analogy. In both cases we obtain, at first, disappearance of the induced phenomenon, and then the production of a complementary phenomenon. To the hallucination of red there succeeds the complementary one of green, which, in some way, is the opposite of red, since the two colors, when mixed, are neutralised, and they form white. In like manner, in the polarization of an emotion, we observe one of a contrary nature appearing: joy succeeds to sadness; benevolence succeeds to anger. Hence we may conclude that as there are complementary colors, there also are *complementary emotions*. The emotion of joy, for example, has as its complementary emotion, that of sadness, as the sensation of green has as its complementary the sensation of sad.

All these effects, produced by the action of the magnet on hypnotised grand hystericals, may, from their special nature, give rise to some doubt as to their reality in the mind of a person who examined them only superficially, or who, beforehand, has had but little faith in experimental hypnotism. But when it is considered that the two French authors conducted their experiments in so scrupulous a manner as to exclude every suspicion of simulation or fraud, and obtained identical effects from the same experiments repeated on various subjects, we ought to accept the facts which they have described, and to derive from them, an impulse to repeat them, and to study, under new points of view, the nervous systems of hysterical subjects, as *their* nervous systems present all the conditions favorable to every series of experimental researches.

We shall close this clinical study of suggestions by relating the following fact, recently described by Dr. Mabile. V—, while in somnambulism, received the suggestion that at 8 o'clock in the evening she would feel the want of sleep, and she would awake at 5 o'clock in the morning. Precisely at 8 o'clock she went profoundly asleep, and it was said to her; "a quarter of an hour after waking your right arm will present, at this point, a V, which

will give blood." Shortly after receiving this suggestion the patient fell into one of her usual crisis, at the close of which there was found on the arm an effusion of blood, in the form of a V. The same phenomenon was produced twice in the same night, and in the same form. In this case, therefore, there was obtained the appearance of a subcutaneous hemorrhage, under the influence of mental suggestion. However strange this phenomenon may at first sight seem, yet it is not devoid of interest, since we may regard it as the experimental reproduction of those singular hemorrhagic manifestations presented by certain hysterical persons during the convulsive crisis, and known under the name of *stigmata* or *blood sweats*. The story of the Tyrolese *Marie Koerl* (1834) who, in her periods of religious ecstasy, presented cutaneous hemorrhages on the hands and the feet, and over the heart has been celebrated, also, that of *Lucia Lateau* (1868), on whom there appeared, during cataleptic ecstasy, stigmata on the hands and the feet, whilst there was formed around the head a circle of blood which ran down over the cheeks, the temples and the neck. So then, the phenomena, which like so many others characteristic of the grand hysterical neurosis, once belonged to the domain of the supernatural and the marvelous, now enter into the positive domain of experiment.

The concluding section of Dr. Seppilli's interesting article is devoted to some practical observations on the medico-legal bearings of hypnosis; but as this aspect of the subject might not be very attractive to a miscellaneous audience, and as the study of hypnotism may be said to be as yet only in its infancy, it may be best not to arouse the vehemence of the pundits of jurisprudence, by any hints that might appear suggestive of doubt of their infallible psychological competency.

W.

Report of the Progress of Classification of Mental Diseases.*

By CLARK BELL, Esq.,

Member of the International Committee, Etc., Etc.

THE general interest felt in the subject of a classification of mental diseases, upon a basis so simple and practical, that it will meet the approval of both alienists and publicists throughout the world, as a basis for uniform International Statistics, regarding insanity, has led me to briefly call the attention of the Medico-Legal Society of New York, to the present position of the subject, as well in the countries of North and South America as in the European countries.

The readers of the *Medico-Legal Journal* have been made familiar with the effort inaugurated by the Society of Mental Medicine of Belgium, which resulted in the International Committee appointed at Antwerp last September, to grapple with the difficulties in the way of a successful solution of the problem. It is hardly necessary now to recapitulate the work under which distinguished alienists have been interested in co-operating in these labors, or to re-state what has been previously done on this continent to bring the subject forward for a general discussion.

The personale of the various committees appointed in response to the invitation extended at the request of the Belgian Society has been announced, but it may be proper to re-state them as they are framed at this time.

The International Committee on International Statistics of the Insane and Classification of Mental Diseases is composed as follows:

Dr. D. Hack Tuke, of London, for England; Dr. Guttstadt, of Berlin, for Germany; Prof. Dr. Benedikt, of Vienna, for Austria; Dr. Magnan,

* Read before the June meeting of the Medico-Legal Society.

of Paris, for France; Dr. Valdemar Steenberg, of Copenhagen, for Scandinavian countries; Dr. Mierzejewski, for Russia; Dr. Ramaer, of The Hague, for Holland; Dr. Sola, of Buenos Ayres, for South America; Mr. Clark Bell, for North America; Prof. L. Wille, of Basle, for Switzerland; Prof. Andrea Verga, Senator of Milan, for Italy.

The paper of Prof. Lefebvre, of Belgium, the proceedings of the Congress at Antwerp, the letter of B. C. Ingels, M. D., to the American member of the Committee, have been forwarded to several of the learned and scientific bodies in the United States and Canada, and the attention of the American, Canadian and Mexican Governments called to the desire of the Belgian Society, and that it requested the co-operation of these bodies and Governments to the work imposed upon the Committee by the Antwerp Congress.

The following gentlemen have been named by the learned societies, as their representatives in the work up to the time of our going to press, leaving some yet to be heard from:

The Medico-Legal Society of New York:—Dr. Pliny Earle, of Northampton, Mass.; Dr. Alice Bennett, of Norristown, Pa.; Dr. Charles H. Hughes, editor *ALIENIST AND NEUROLOGIST*, St. Louis, Mo.

The National Association for the Protection of the Insane and the Prevention of Insanity:—Dr. Charles K. Mills, of Philadelphia; Dr. John C. Shaw, of Flatbush Asylum, N. Y.

The American Association for the Cure of Inebriety:—Joseph Parrish, M. D., Burlington, N. J.; T. D. Crothers, M. D., Hartford, Conn.; Dr. Albert Day, Superintendent Washington Home, Boston, Mass.

The Society for Promoting the Welfare of the Insane:—Dr. Henry R. Stiles, New York City; Edward P. Wiley, Esq., New York City.

The Association of Medical Superintendents of American Institutions for the Insane:—Dr. Charles H. Nichols, of Boomingdale Asylum, New York; Dr. Henry P. Stearns, Hartford Retreat for Insane, Hartford, Conn.

The Massachusetts Medico-Legal Society:—F. Windsor, M. D., President of the Society, Winchester, Mass.; Ira Russell, M. D., Superintendent Insane Hospital, Winchendon, Mass.

American Academy of Medicine:—Dr. E. W. Cushing, of Boston; Dr. A. D. Rockwell, of New York; Dr. P. N. Connor, Cincinnati, Ohio.

Medico-Chirurgical Association of Canada:—Dr. Henry Howard, Montreal; Dr. James Stewart, McGill University, Montreal.

New England Psychological Association:—Dr. J. P. Bancroft, Concord, N. H.; Dr. William B. Goldsmith, Superintendent Butler Hospital, Providence, R. I.; Dr. Walter Channing, Brookline, Mass.

The letter of Dr. Pliny Earle, the Nestor of Alienists, appeared in the March number of the *Journal* (p. 462 and 463).

I shall endeavor to briefly report the progress of the labors of the International Committee.

Dr. Chas. H. Hughes, one of the Committee named by the Medico-Legal Society, to co-operate with the International Committee, writes as follows:

ST. LOUIS, May 10th, 1886.

CLARK BELL, ESQ.,

MY DEAR SIR:—The appearance of your valuable journal for March on my desk reminds me that I owe you a note of thanks for having named me on the committee with Earle and Bennett, on the Classification of Mental Diseases.

I send accompanying this the photograph you long ago requested, but which I have only lately had the time to sit for.

I have read with much interest Dr. Earle's letter on Classification, and concur in his view of the necessity for simplicity.

There should be at least three broad classifications to make the species, and then varieties might be made to suit individual notions, viz: the insanity of organism, or of organic heredity, which would include the *primare Verrucktheit*, or paranoia, and all of Hoffbauer's grades of hereditary imbecility and idiocy, and do away with the sophistry of making a distinction between morbid (congenital) defect, and disease (which is often made), in order to save the change of character symptom in definition. Hereditary defect is disease defect, the product of antecedent ancestral disease, or of disease in the individual, taking place *in utero*. These are the erratic forms of insanity.

All typical forms could then be classed under the heading of the pure psychical forms, in which intellectual delusions exist and characterize them; the semi-psychical or psychosensory, in which the intellectual disorder comes through perversion of special or of organic sensation. Under the one head you have delusional manias and dementia. Under the other the morbid aversions and impulsive forms.

The purely psychical would embrace mania, general paralysis, and epileptic insanity (with delusion) and all primary intellectual aberrations, etc.

The psychosensory would include the hysterical delusions, melancholias and all effective or other emotional forms.

Insanity is a change of mental type brought about by disease, either in the individual or ancestral. If in the individual, it makes a change of character as compared with natural self; if ancestral the departure in character is from the original healthy type.

Irresponsibility should be no necessary part of any definition, but the expert should say to what extent and under what circumstances irresponsibility might exist.

The basis of classification might be extended so far as departure from physiological standard could be found, but complete definitions founded on pathological changes cannot yet be made, nor can they in many diseases centering elsewhere, for pathological views are continually modified by new discovery.

Yours truly,

C. H. HUGHES.

Dr. Walter Channing, a member of the Committee selected by the New England Psychological Association, writes upon the same subject as follows:

BROOKLINE, MASS., May 15th, 1886.

CLARK BELL, ESQ.,

DEAR SIR:—Your letter of the 11th inst., asking me (as a member of the New England Psychological Society Committee, appointed at your request, to consider the subject of an "International Classification of the Mental Diseases,") to make a communication to you on the same, is at hand—and I hasten to reply. Allow me to acknowledge the receipt of the *Medico-Legal Journal* containing Prof. Meynert's paper and the letter of Dr. Earle.

I have myself, as yet, never seen an entirely satisfactory classification, though several have been founded on good and reasonable principles. When worked out by their authors they were lacking in the clearness and conciseness which would make them easily understandable and ordinarily useful. Perhaps the fault was with the would-be user and not the author, it might be said. And this would lead to the question, should a system of classification be simple and capable of comprehension by the average alienist, or would a complex and infinitely detailed one, which would be better adapted to meet the highest scientific tests, more adequately fulfill the conditions?

My answer to this question would be that we require the first kind of a system, and no other will ever be successful in the sense of being used, however justified by scientific data.

Whether an international classification can be established must be a matter of uncertainty, until the experiment has been tried. The great difficulty, at present, consists in the different degrees of progress which have been made in the study of mental diseases by the different countries. While we, as Americans, need not reproach ourselves with being behind hand in the care and treatment of the insane, as compared with any other country, we have some ground for asserting that we are behind Germany, France, Italy, and shall we modestly add—England, in our theoretical studies and observations. We need not be ashamed of it, for we are always willing to patiently learn theories of all other nations, and adapt them to practical uses. We are and must be essentially practical in our point of view.

Therefore, I am led to say that the system which will be of use in statistically classifying the mentally diseased in German asylums, may be entirely unfit for a similar purpose in American hospitals for the insane. Take the arrangement proposed by Professor Meynert, for instance, which seems to me in many respects admirable, as far as I have looked into it. Are we justified in making an "acute insanity" as separated from "melancholia" and "mania"? What is ordinarily understood here by "primary imbecility"? Is "chronic primary insanity" generally recognized? Is it desirable to have a division of "Toxical Mental Disorders" or a division of "individuals who need watching"?

Far be it from me to here criticise in any way the carefully arranged plan of Professor Meynert.

I merely interpolate the question, whether the present mixed condition of American psychiatric knowledge warrants the assumption of the German standard.

In adopting any system of classification in this country, the most careful attention must be given to its forensic bearing. Will it bear the test of law? Can it be understood by the court, or be made ordinarily available in medico-legal cases? These are all questions requiring study and extended discussion.

I am strongly of the opinion that a meeting for a thorough discussion of the whole subject will be the only way to get at the best ideas of many of the medical profession. As many of the more recently appointed committees have, as yet, hardly had time to give the matter any thought, I would suggest that we meet in New York in the autumn. In October, I myself would certainly be present, as far as I can now foresee.

Excuse the briefness of this letter. Further elaboration I will defer until later.

Yours, very truly,

WALTER CHANNING.

A conference of all the members of the various American and Canadian committees has been suggested for systematic work on the questions submitted by the Antwerp Congress for the coming summer vacation or autumn.

Dr. Charles K. Mills has suggested Atlantic City for the place of meeting. Dr. Pliny Earle, Saratoga, and others, the City of New York. The matter is under advisement, and will soon take definite shape.

The Mexican Government has acknowledged the receipt of the invitation to name a committee for coöperation in this work, and has notified the American member that the President of that Republic is now considering the subject, and will forward the names of distinguished scientists of that country to coöperate in the labors of the International Committee.

At the January meeting of the Belgium Society of Mental Medicine, the Secretary, Dr. B. C. Ingels, submitted an analysis of all the letters and reports made to him by the various members of the International Committee down to that date.

He stated that Prof. Verga, delegate for Italy; Guttsstadt, for Germany; Benedikt, for Austria; Clark Bell, for North America; Wille, for Switzerland; Mierzejewski, for Russia; Steenberg, for Scandinavia; Hack Tuke, for

England; Magnan, for France, and Ramaer, for Holland, had made reports.

His analysis is published at length in the *Bulletin de Societe de Medicine Mentale de Belgique*, 1^o fascicule for 1886, p. 25 et seq.

The personale of the various committees appointed in the United States at that time, in response to Mr. Bell's invitation, is published as furnished by the latter. (1).

Professor Andrea Verga, President of the Societe Freniatria Italiana, submitted a plan of classification, as follows :

Phrenopathies or Chronic Mania (Mental Alienation).	Acquired Phrenoses or Psychoses.	Congenital or Phrenasthenia (Cerebrasthenia).	{	Imbecility.
				Idiocy.
		Mania.	{	Cretinism.
			{	With fury.
				Without fury.
		Monomanie.	{	Intellectual.
				Emotional.
		Melancholie, or Lipe Mania.	{	Simple.
				With Stupidity.
		Dementia.	{	Primary.
				Secondary.
		Mania, double or recurrent. Moral insanity.	{	
		Phrenoses, or Psychoses Complicated with	{	Sensory, Psychoses.
				Hypochondria.
				Hysteria.
				Puerperal Insanity.
				Epilepsy.
				Alcoholic or Tonic.
				Pellagreous Psychoses.
				Paralysis.
				Senility.

Dr. Guttstadt had submitted a plan of inquiries to be submitted to institutions, and furnished a list of fifteen questions in one formula and five in another, that he advised be sent to all superintendents of asylums, to be answered and returned under the signature of the Medical Superintendent.

The *Bulletin* contains a French translation of both these formulas, which are based upon the classification in vogue in the Statistical Bureau of the German Government, at Berlin, with which Dr. Guttstadt has been so prominently identified. The formula of these questions is as follows:

Formula A.

Proposed by Dr. Guttstadt, of Berlin, to be sent to all Superintendents of Asylums for a response.

ASYLUM AT ———

1. Date of entry.
2. Name in full and sex.
3. Place of birth.
4. Residence—In what Prison—Asylum or Hospital?
5. Date of birth.
6. Single, Married, Widowed or Divorced.
7. Religious profession.
8. Social position.
9. Duration of insanity, before admission.
10. Were parents related? If yes, in what degree?
11. Characteristics of disease, whether mental, nervous, homicidal, suicidal, or criminal, and peculiar traits or characteristics.
 1. Residence of father? Of mother?
 2. Residence of grandfather, grandmother, uncles, aunts, paternal, maternal?
 3. Residence of brothers and sisters.
12. Has he violated any police regulation?
What and how?
Has he been punished and how?
13. Form of Malady, (a) Alienation simple. (b) Alienation with paralysis, (c) with epilepsy or epileptic hysteria, (d) Imbecility (from birth) idiocy, cretinism, (e) Delirium-Tremens, (f) not insane.
14. Has he any physical defects and what?

15. Has he been in any Asylum?
 When, at what date, and where? 1st time
 Was he discharged cured or not cured?
 2d time, when taken and how long.
 3d " " " " " "
 In these times has he been discharged cured or not cured, and
 how many times?
 16. Is he a free or a paid patient?
 Dated 188

Signature of the Physician in Charge.

Formula B.

ASYLUM AT ———

1. Name in full, and sex.
2. When admitted.
3. Form of Mental disease.
4. Discharged as
 - a Not insane.
 - b Cured.
 - c Improved.
 - d Not Cured. { Where has { To what institution?
 { he gone? { To his family?
 - e If dead, cause of death, without autopsy.
 " " after autopsy.
5. Total time remaining in Asylum.
6. Time in Asylum when he died?

Signature of the Physician in Charge.

Professor Benedikt reported his action. After consulting Leidesdorf, Meynert and Gauster, he had called the alienists of Austria and Hungary together. It was at this convention that Prof. Meynert read the paper, a translation of which appeared in our last issue; the classification submitted by Meynert is published in the *Bulletin* of the Belgian Society. (2).

To make all the classifications thus far submitted complete, we copy from Dr. Meynert's paper, above referred to, the classifications given them by him.

NOTE (2).—See page 415, March number, 1886, *Medico-Legal Journal*, for Meynert's classification.

Professor Lefebvre's classification, approved by the Belgian Society:

- | | |
|-------------------------|------------------------|
| 1. Idocy. | 5. Toxical Alienation. |
| 2. Cretinism. | 6. Mania. |
| 3. Dementia Paralytica. | 7. Melancholia. |
| 4. Dementia. | 8. Folie Circulaire. |

The German plan, quoted by Meynert, as hinted at by Guttstadt, and substantially adopted at the conference of German alienists, at Frankfort-on-the-Main, in 1881:

1. Ordinary Mental Disorder.
2. Paralytical Mental Disorder.
3. Mental Disease, accompanied by Epilepsy.
4. Imbecility, Idiocy and Cretinism.
5. Alcoholic Mania.
6. Individuals who need Watching.

Westphal's plan, cited by Meynert and approved by Weisbaden conference of 1873:

1. Melancholia.
2. Mania.
3. Secondary Mental Disease.
4. Paralytical Mania.
5. Epileptic Mania.
6. Imbecility, Idiocy and Cretinism.
7. Delirium-Tremens (Toxie).

MEYNERT'S PLAN OF CLASSIFICATION.

As submitted to the Austria-Hungarian Conference.

Simple Mental Disorder:

- | | | |
|--------|---|---------------------|
| Acute. | { | Melancholia. |
| | | Mania. |
| | | Insanity. |
| | | Primary Imbecility. |

Chronic.	{ Primary Insanity. Intermittent Mental Disease. Secondary Mental Disease.
Complicated Mental Diseases.	{ Paralytical. Epileptical. Hystero-Epileptic. Mania.
Toxic.	{ Alcoholic. Other Toxic Agents.
Individuals who need watching.	{ Attempts at Suicide. Crimes, etc., etc.

Dr. Steenberg's report of Copenhagen is published entire in the *Bulletin*. We regret that want of space forbids our doing the same, as it is very interesting. On consultation with alienists in Denmark, Norway and Sweden, he submitted the following classification:

1. Acute Mania.
2. Chronic Mania.
3. Degenerative Mania.
4. Alcoholic Mania.
5. Paralytic Mania.
6. Epileptic Mania.
7. Idiocy.

To which he submitted the following sub-divisions:

To the 1st, Melancholia.	Melancholie.
Stupidity.	Heilbandemenz.
Mania.	Manie.

To the 2d, Chronic Melancholia. Chronische Melancholia.

Dementia,	{ Secunde Verrucktheit. Terminaler Blodsinn.
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To the 3rd, Monomania.	Primare Verrucktheit.
Hypochondria.	Hypochondrisches Irresinn.
Hysteria.	Hysterisches Irresinn.
Recurrent Insanity.	Pesiodisches Irresinn.
Moral Insanity.	Moralisches Irresinn.
To the 4th, Delirium Tremens.	Delirium Tremens.
Chronic Alcoholic Insanity.	Alkolisches Irresinn.
Periodic Dipsomania.	Periodische Dipsomanie.
To the 5th, Paralytic Insanity.	Paralytisches Irresinn.
To the 6th, Epileptic.	Post Epileptisches Irresinn.
Epilepsy.	{ Psychisch Epileptischs. Aequivater.
Transitory Delirium.	Mania Transitoria.
To the 7th, Imbicility.	Angeborne Imbecillital.
Idiocy.	Idiotie.

Professor Wille, of Basle, Switzerland, had the promise of the Swiss Government that a simple plan should be agreed upon. He had consulted the Helvetian alienists who were unanimous against accepting the elaborate classification submitted to the Congress by Mr. Lefebvre, and submitted a classification upon which they had united, viz.:

1. Psychoses Congenital. { Idiocy,
Imbecility.
2. Psychoses Simple.
3. Psychoses Organic. { Psychoses Paralytic.
Psychoses Senile.
Other Organic Psychoses.

4. Psychoses Epileptic.

5. Psychoses by Intoxication. { Alcoholic Psychosis.
Other Psychoses from Intoxicants.

Professor Wille submitted a paper, entitled :

“Aufgaben und Leistungen der Statistik der Geisteskranken,” a translation of which, in French, appears in the same number of the *Bulletin*.

Dr. D. Hack Tuke, of England, had submitted a classification of mental diseases, which had been unanimously adopted by the Administrative Council of the British Medico-Psychological Association, which is as follows :

1. Mental Alienation.

Congenital or acquired.

Idiocy, Imbecility and Cretinism.

with Epilepsy—without Epilepsy.

2. Epilepsy.

3. General Paresis.

4. Mania. { Acute.
Chronic.
Recurrent or periodic.
A potu — .
Puerperal.
Senile.

5. Melancholia. { Acute.
Chronic.
Recurrent.
Puerperal.
Senile.

6. Dementia. { Primary.
Secondary.
Senile.
Organic (tumors, hemorrhage).

7. Chronic Delirium (Monomania).

8. Moral Insanity.

Dr. D. Hack Tuke stated that recurrent insanity had not been included, because it required usually one year of observation before it could be certainly diagnosed, and an International classification should be as simple as possible, giving freedom to each country to add supplementary divisions if desired.

Dr. Hack Tuke has submitted, simply on his own behalf, a few sub-divisions, as :

Stupor, with or without melancholia, recurrent insanity, and the different forms of Melancholia, and of Mania, Hypochondria, Hysteria, etc., etc. He thought the classification submitted was symptomatic. It might be well to frame an etiological classification, were it not for the difficulties in the way of its use for International statistics.

Dr. Mierzejewski, of Russia, reported that he had submitted the action of the Antwerp Conference to the Society of Psychiatry, of St. Petersburg, which had named a commission of nine members to make a report in conjunction with the Statistical Bureau of the Russian Minister of the Interior. But as a Congress of alienists of Russia had been called to meet in October, 1886, the St. Petersburg Society had preferred to wait till after that Congress, before making a definite report.

Dr. Magnan, of France, wrote that the Societe Medico-Psychologique of Paris sympathized with the labor assigned the committee, but found that it would be difficult to arrive at a valuable result, owing to the wide divergence of views and opinions which existed in France among alienists upon the question.

He advised that a plan be adopted for collecting reports from institutions and superintendents, as to inmates, on a plan that would leave out all questions of etiology, curability and mortality, obtaining the total number of inmates with general description of the insane. He realized the embarrassment growing out of the nomenclature of each country, and the tendency to generalization in one location, and to detail in another, and

Table C.

DURATION OF THE INSANITY, AS COLLECTED AT THE
INSTITUTION OF ————— FOR THE YEAR ———

	Idiocy.		Dementia.		Mania.		Melancholia.		Acute or Chronic.		Recurrent Insanity.		Complicated Insanity.		Insanity by Intoxication.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Congenital.....																
From one to two years.....																
More than two years.....																
Duration unknown																

These various communications from the different countries of the world have greatly encouraged the Belgian Society in the labor it has assumed, and seem to show the general interest felt in the subject by alienists and publicists in various countries.

I should not omit the action of the Medico-Legal Society of New York, upon a subject which possesses for it so much interest.

At the meeting of December, 1885, I had the honor of moving that the paper of Prof. Lefebvre of Belgium, the action of the Antwerp conference, and the whole subject matter of Classification of Mental Diseases, and International Statistics of the Insane, be referred to a committee of seven, to be named by the President, who should examine the same and report to the body, which was adopted unanimously.

The committee named by the President, Prof. R. O. Doremus were:

Dr. A. E. McDonald, of the New York City Lunatic Asylum at Ward's Island, Chairman.

Mr. Clark Bell, of New York.

Dr. Jennie McCowen, of Davenport, Iowa.

Dr. Ira Russell, of Winchendon, Mass.

Dr. Stephen Smith, State Commissioner of Lunacy, of New York.

Dr. W. R. Birdsall, of New York.

Dr. T. H. Kellogg, of New York.

Dr. Sola, of Buenos Ayres, representative for South America, is in correspondence with myself upon the subject. He is now in Paris and will return home in September.

A plan is under advisement with the Belgian Society, Dr. Sola and myself, to bring the States of Central America into the work, by suitable representation, which, however, has not progressed sufficiently to describe at present.

We do not under-estimate the difficulties in the way of a solution of the problem under discussion, nor in modifying and unifying the various views, coming from so widely diversified sources.

The work is now well under way, and the coming summer and fall will, we think, bring the various reports from all countries represented, so that the labor of formulating a common basis acceptable to all, may be undertaken with fair hope of success.

A Case of Traumatic Progressive Muscular Atrophy of Long Duration, Complicated by an Attack of Left Hemiplegia, due to Embolism.

By EDWARD C. MANN, M. D., New York,

Sunnyside Home for Nervous Invalids, 204 Leffert's Place, Brooklyn, N. Y.; Member
Medical Society of the County of New York, New York Medico-
Legal Society, etc., etc.

THE following is the interesting history of this patient, Mr. L. —, native of England, aged 38. Family history good. Up to 21 years of age this patient was in perfect health. He then fell from the rigging of a ship on deck, and was taken up unconscious, but had sustained no fractures of any bones. The ship's physician said he had received some obscure injury at the base of the brain. In about a month after this, the deltoid muscles began to waste. The biceps was next attacked, the lower muscles were progressively attacked, and the muscles of the legs followed those of the arms. The gait became slow and dragging, and the rectum prolapsed. There were no head symptoms. Appetite and sleep were good, but the digestion was poor. By advice, did not exercise much. From this time up to one year ago he took a strychnia mixture, which he was then obliged to suspend on account of the physiological effect of the drug. A consultation of physicians in London, twelve years ago, among whom was Sir Wm. Gull, gave an unfavorable prognosis, telling the patient that he could not live over a year; that the respiratory muscles would then be attacked, and he would then die. On the contrary, the patient has improved, rather than retrograded. Some of the atrophied muscles have grown and regained power, while others have not atrophied more than before. The general physical health has been excellent, and the patient looks well-nourished, and has a

good color. On the 30th day of May the patient spent the Sunday in the country, and walked a good deal in the sun. He went to bed and slept well. He arose Monday morning, and was taking his bath when he felt a sudden, slight dizziness, and fell over toward the left. He retained consciousness. He tried to shout for help, but could not articulate. He pounded on the floor with his right hand, and when help came, found that he could not raise the left hand or foot. They were perfectly helpless. In about ten minutes he partially regained the power of articulation. On the next day he regained the use of the left arm, but not of the leg. By Wednesday he could move the fingers of the paralyzed hand, and began to have a slight degree of power in the left leg. On Thursday there was a gradual increase of power in both arm and leg, and on Friday still more improvement, the arm receiving power much more rapidly than the leg. The aphasia at first marked has been disappearing every day. Saturday, feels much better than on any previous day. There are no head symptoms, no temperature, bowels regular, kidneys work well, appetite good, sleeps well. Ophthalmoscopic examination reveals nothing abnormal about retina. Mental faculties perfectly normal.

On Sunday, June 6th, the power in both left arm and leg is markedly increased, and the patient progressing beyond our anticipation. Not an untoward symptom has appeared.

At first sight the hemiplegia might possibly be thought to depend for its causation on the progressive muscular atrophy, but we do not consider that to be the case.

The morbid anatomy of the latter disease (*Prog. Mus. At.*) reveals that the parts which are affected are the anterior cornua of the spinal cord, the motor nerves which emerge from it, and the muscles which these nerves supply. The nerve cells of the anterior cornua of the cord undergo various forms of degeneration, and, perhaps, disappear altogether, or there may be more or less sclerosis of the adjoining portions of the anterior

cornua, with corresponding atrophy of the nerve tubules. In the early stages the blood-vessels of the affected parts are enlarged and their walls thickened. The anterior nerve-roots which connect the diseased cord with the affected muscles undergo the same change as in infantile paralysis, but degeneration is not so extreme or general, and it is not shown until the muscular atrophy has progressed somewhat. The muscular change consists in an attenuation of the muscular fibres, with an attempt at more or less proliferation of the cells of the sarcolemma. Granular and fatty degeneration, with disappearance of the transverse striæ may supervene at a late period of the disease. There may be hypertrophy of the connective tissue investing the muscular fibres, and accumulation of fatty matter in the same location. The affection of the cord was in this case, and, we think is in all cases, distinctly inflammatory, and preceded and caused the lesions of the motor nerves and muscles. Progressive muscular atrophy generally attacks the muscles of the hand, and especially the muscles of the ball of the right thumb. The enfeeblement of the muscles did not precede the atrophy, but followed upon it. We can see nothing to interfere with the duration of this patient's life, from the progressive muscular atrophy, unless the muscles of respiration or those of deglutition become involved.

The next point of interest in this case is that of the differential diagnosis of the late hemiplegia. Aside from the chronic diseases under which this patient was laboring, there were no prior symptoms before the attack of hemiplegia. This patient is but 38 years old. If he were older we should say that his attack of left hemiplegia, without loss of consciousness, and temporary loss of speech, were the result either of softening from thrombosis, or clot from rupture of a vessel. In softening, however, we should expect to find a more deliberate mode of onset; and in case of clot from rupture of a vessel we should have looked for prior symptoms. He

has no chronic Bright's disease, and no retinal clots, and we, therefore, incline to the view of plugging of a vessel by an embolus as the correct diagnosis. The symptoms due to arterial obstructions are always sudden in their onset, and, for the most part, occur unexpectedly, at a time, perhaps, when the patient seems to be in perfect health. Our patient was, as his history shows, attacked with faintness while taking a sponge bath, and fell over, with no loss of consciousness. As soon as these initial symptoms and the momentary attack had passed, it was discovered that left hemiplegia was present. From the fact that temporary total inability to utter articulate sounds occurred, and that some aphasia was present, we are inclined to think that it is possibly one of those exceptional cases where a lesion on one side of the brain (the left middle cerebral artery being probably plugged) has given rise to a lesion on the corresponding side of the body. We know that impairment of intelligent language is due generally to lesion of that part of the left cerebral hemisphere supplied by the left middle cerebral artery, notably the corpus striatum, island of Reil and posterior part of the third frontal convolution of the left side of the brain.

There are a few cases reported, to which I drew attention in a paper on aphasia, in October, 1884, in the *ALIENIST AND NEUROLOGIST*, where, with hemiplegia of the left side, there was disease of the right cerebral hemisphere, where more or less aphasia existed, so that in the case now before us this may, by a possibility, be the case. There is no headache, no sickness, no rigidity of the affected limbs, and no loss of control over the rectum and bladder. Another reason for supposing our patient to be suffering from embolism is the fact that the order in which the different parts of the body are regaining the power of motion is different from hemiplegia depending upon apoplexy. The first evidence of returning strength has appeared in the arm, while the leg continues almost motionless. The intellect is perfectly clear.

Our patient has never had cardiac disease, rheumatism, syphilis, or chronic renal disease, so that we had none of those points to aid us in making a differential diagnosis. We relied for the correctness of our diagnosis on the age of the patient, and the fact of the occurrence of sudden and complete hemiplegia without loss of consciousness, and without premonitory symptoms.

The Individualized Treatment of the Insane.

By JOHN S. BUTLER, M. D., HARTFORD, CONN.

Late Physician and Superintendent of the Connecticut Retreat for the Insane; Late President of the Connecticut State Board of Health; Honorary Member of the Medico-Psychological Association of Great Britain.

INSANITY is a disease of the brain, including a departure from ordinary modes of thought and states of feeling in health.—*Dr. Ray.*

INSANITY is a calamity incident also to tender sensibility, to grand enthusiasm, to sublime genius, and to intense exertion of the intellect.—*Sir James McIntosh.*

WHOEVER has brought himself to consider a disease of the brain as differing only in degree from a disease of the lung, has robbed insanity of that mysterious horror which forms its chief malignity.—*Sir James McIntosh—Life of Robert Hall.*

THE physician, confident in the assurance that patient and careful observation of insanity, with the earnest desire to understand its nature, does fit him to express with authority the results of his experience, must not shrink from pronouncing his opinion sincerely and fearlessly, however unpopular it may be.—*Maudesley on Responsibility in Mental Disease.*

IN the comparisons of the provisions made for the insane in the United States, in 1844, with those of the present day, we find the best measure of progress to be in the larger recognition of their necessities, in remedial treatment, custodial provision and acceptance of the power of prevention as applicable to insanity as to other physical diseases.

In October, 1844, thirteen gentlemen met in Philadelphia and organized the "Association of Medical Superintendents of Institutions for the Insane." Their object was, by a comparison of views and careful study, "to secure for the future a higher standard for hospitals, and a more liberal and enlightened treatment for all suffering from mental diseases." The causes which led to

this result are stated in the Secretary's history of the Association. At that time, 1844, there were in the United States twenty-five lunatic hospitals of all classes, containing less than twenty-six hundred or twenty-seven hundred inmates. The largest number in a distinct hospital was two hundred and sixty-three, in that of Worcester, although there were three hundred and fifty in the Receptacle on Blackwell's Island. According to the report of the Board of State Charities in Pennsylvania, in September, 1883, there were in the United States one hundred and forty-seven lunatic asylums, containing fifty-one thousand, eight hundred and seventeen patients, the total number of the insane in the United States being estimated to be ninety-two thousand, or one in five hundred and forty-five of the population, the lowest rate of insanity being found in the more recently settled States. The Association at this time embraces all North American institutions, and now records one hundred and twenty-two active and retired members. Well may the excellent and most efficient Secretary say of the Association that, "Formed in the interest and for the promotion of the welfare of the insane, it has been steadily growing in numbers, in influence and power, until it covers with its protecting shield a large proportion of the insane throughout the length and breadth of the land." In the eventful history of the Association for the past forty years there has been, for the most part, a singular and cordial unanimity of action as to the best means of attaining the desired end—the highest good of the insane. The "Propositions" adopted by the Association show not only a large wisdom, but a foresight of the necessities of this comparatively new and unexplored field of philanthropy.

The unexpected large and continually increasing number demanding either hospital treatment, or simply hospital supervision and care, has naturally led to a diversity of opinion as to the number of patients that can be most profitably treated in one institution. That the causes of

this diversity may be better understood, and my own position more clearly defined, I may here quote some of these propositions, and my reasons for objecting, not only to the one accepted by a close vote, but to the others subsequently passed and in accordance with it.

At the meeting in Philadelphia, in 1851, among other propositions, the following was unanimously adopted:

The highest number that can, with propriety, be treated in one building is 250, while 200 is a preferable maximum.

At the meeting in Washington, in 1866, the following propositions were adopted:

Insane persons considered incurable, and those supposed curable, should not be provided for in separate establishments:

* * * * *

The large States should be divided into geographical districts of such size that a hospital, situated at or near the center of the district, shall be practically accessible to all people living within its boundaries, * * * * * and available for their benefit in cases of mental disorder.

All State, county and city hospitals for the insane should receive all persons belonging to the vicinage designed to be accommodated by such hospitals, who are afflicted with insanity, whatever may be the form of the bodily disease accompanying the mental disorder.

The enlargement of any such specified institution may be properly carried, as required, to the extent of accommodating six hundred patients, embracing the usual proportion of curable and incurable in a particular community.

While the other propositions were quite unanimously accepted, this was passed, near the close of the meeting, by a vote of eight to six. Under the increasing pressure of necessary admissions, this proposition has seemed practically to annul any official limitation of number.

At the meeting at Toronto, in 1871, the Association reaffirmed, in the most emphatic manner, all the former declarations in regard to hospital organization, management, etc., and also,

RESOLVED, That neither humanity, economy nor expediency can make it desirable that the care of the recent and chronic insane should be in separate institutions.

My own position upon this point of numbers was early taken, and I have seen no good reason to change. At the meeting in Pittsburg, in 1865, I stated to the Association that the admission into the Retreat of a large number of incurable State patients had greatly embarrassed the remedial treatment of the recent and hopefully curable. And I was, consequently, led to suggest the consideration by the meeting of some kind of distinct and efficient provision to be adopted by the State for these unfortunates. I did this simply, without any distinctly formed plan of my own, but only to find the best effectual way of escaping from such possibly avoidable interference with hopefully curable treatment. Most unexpectedly to me, this proposition led, as was reported, to the "most excitable debate of the session," and, as unexpectedly, to its almost unanimous disapproval, only one member (Dr. Hills, of Ohio), voting with me in favor of it. I then offered the following motion:

RESOLVED, That a committee of three be appointed to take into consideration the condition of the chronic and supposed incurable insane, and the possible arrangement for their treatment and custody, and to report at the next meeting of the Association.

The motion was, in due courtesy, passed, and Drs. Butler, Walker and Curwen were appointed the committee.

A long vacation, made necessary by illness, prevented both my preparation of a report and my attendance at the next meeting.

At the meeting in 1866, propositions favorable to my views were presented by Dr. Walker, and rejected; while others of an opposite import, by Dr. Chipley, were accepted. The unanimous reaffirmation of all the propositions heretofore adopted, clearly defined the decision of the Association on those points.

I hold that these later propositions fail to anticipate the large increase of the number of the insane, the larger hospital accommodations they demanded, and, especially, the changes so rapidly coming over the different classes. Neither the original thirteen, in 1844, nor the members

who in 1851 voted that, "two hundred were a preferable maximum of inmates to be treated in one building," could have imagined the present number of insane, in and out of hospitals, or that its rapid increase would, in a single year (1844), add more than two hundred to their number in the single State of Massachusetts.

My proposition at the Pittsburg meeting in 1865, seemed to fall lifeless from the animated discussion which it had excited; but the radical principle it contained, like good seed sown by more than one hand and in good ground, has, after twenty years of gradual and persistent development, come forward with better promise of acceptance in the future.

Here, fairly to myself, I may recall some of those events in my earlier professional life, which led me to determined opinions in regard to the necessities of the insane.

Early in 1833, shortly after I had commenced the practice of medicine in Worcester, Mass., I made a call simply of professional courtesy on Dr. Woodward, who had been lately appointed superintendent of the newly-erected State Lunatic Hospital. While standing with him in the entrance hall, a party of his patients, "crazy men" (then a sadly strange sight to me), passed in from a walk. The Doctor stopped them to give an order to their attendant, and my attention was especially drawn to the pitiable appearance of the laggard of the group. Feeble and emaciated, he seemed to be a hopeless remainder of a man. The Doctor told me he was a young Welshman, Llewelyn by name, as I well remember, who had come to this country "to pick up gold in our streets." Unable to find work or wages, hearing sad news from his home, in Wales, through homesickness he had sunk into the deepest melancholy. "Poor fellow," I said, "his is an utterly hopeless case." "By no means," answered Dr. Woodward. "But I mean *him*," pointing to Llewellyn, "he cannot recover!" "I confidently expect he will," replied Dr. W. "May I see your treatment?" I asked. "Every

day, if you wish," was the Doctor's reply. For weeks following I saw him, if not every day, very frequently. On my return home I said, to a friend, "In my course of lectures in the Harvard Medical School, in my graduate and post-graduate courses in Philadelphia, I heard no such case described. In a library fairly well stocked for that day and faithfully consulted, no such case and treatment was given. If Llewellyn can be cured it will be next to a revelation in medicine to me." In a few weeks he came down to my office to bid me a grateful good-bye, etc., there presenting himself, in contrast with my first interview, a rarely good specimen of a healthy, vigorous and intelligent young man. This case shaped the future of my professional life. For years afterwards I was a frequent visitor to the hospital and a somewhat careful observer in the wards, to all of which Dr. Woodward gave me free access. In those wards I saw frequent illustrations of the marvelous results of the *moral* treatment of the insane—that individualized power, which the healthy, intelligent, enthusiastic mind holds over the "untuned and jarring senses" of the lunatic. Then a young practitioner, striving to win public confidence and position, I found that I gave to my cases of typhus fever, etc., no more frequent, sharp, and kindly treatment than Dr. Woodward gave to his cases of recent insanity. This, especially, was before the first enlargement of the Hospital by the addition of two new wings which Dr. Woodward greatly regretted, being confident it would cripple his system of treatment. He earnestly advised that it should be as an "annex" erected on the adjacent farm land of the Hospital.

In 1839 I was elected Resident Medical Officer of the Penal, Charitable and Reformatory Institutions, and superintendent of the newly erected Lunatic Hospital, of the city of Boston. Those three years' superintendency of the Lunatic Hospital gave me the desired opportunity of applying to my own cases of insanity, those principles of treatment which I had seen applied with such eminent

success in Dr. Woodward's wards, a success which I have never seen surpassed, if equaled; a fascinating illustration to me, of the merciful advances in these later days from the ignorance and cruel barbarism in the "mad houses" of "ye olden times," when, in the language of an old Scotch writer: "The better sort of ye mad people were given to the care of the chirurgeon, the baser sort, to the taming of the scourge!"

I trust it will not seem unduly egotistical if I here quote the testimony of the high and unbiased authority of some of the results of these years, as it bears directly on the principles I am advocating: The *North American Review*, for January, 1843, has an article on "Insanity in Massachusetts." The writer says, "we select for description the Boston Lunatic Hospital in 1842. Its patients are wholly of the pauper class. Its inmates are of the worst and most hopeless class of cases. They are the raving madman and the gibbering idiot, whom, in the language of the inspectors of prisons, hospitals, etc., for Suffolk County, we had formerly seen tearing their clothes amid cold, lacerating their bodies, contracting most filthy habits, without self-control, unable to restrain the worst feelings, endeavoring to injure those who approached them, giving vent to their irritation in the most passionate, profane and filthy language, fearing and feared, hating and almost hated. Now they are all neatly clad by day and comfortably lodged in separate rooms by night. They walk quietly with self-respect along their spacious and airy halls, or sit in listening groups around the daily paper, or they dig in the garden, or handle edged tools, or stroll around the neighborhood with kind and careful attendants. They attend daily and reverently upon religious exercises and make glad music with their united voices. Such is the condition of the insane of the city of Boston; and although but twenty-eight out of one hundred and seventy-one have been cured, and the rest will probably wear out their lives in hopeless insanity, yet there is a melancholy pleasure in witnessing

the great amount of animal happiness they enjoy, in seeing the kind regard paid to prostrate humanity, the respect shown to the deserted temple of reason. It is only as it were twining fresh flowers on the graves of the dead; still it is a grateful sight to the humane, and a more certain indication of high civilization, than the most refined taste in literature and the arts, or the most fastidious of social etiquette."

One of these patients came into the hospital out of an iron cage which I was told she had inhabited more than a year, and several others out of veritable Barnum's menagerie wooden cages. All these were females. Freed from restraint and seclusion, soon after admission, they were all readily won over to decent and orderly lives. Before long all of them were occasional visitors in our own family parlor. I trust these details will not be considered outside of good-keeping, as they seem to me to be but fairly descriptive of the natural outgrowth of due sympathy with the insane, as instructed and fortified by the teachings and examples of Dr. Woodward and others.

On my election, early in 1843, to the superintendency of the Connecticut Retreat for the Insane, I found that the directors had most charitably voted to admit, and at very low rates, many of the pauper and chronic insane from the alms-houses of the State. In these, the earlier days of my Retreat life, when our crowded wards crippled my means of classification, a quiet and apparently inoffensive case of dementia was necessarily located in one of the better wards; the poor man would sit silent all day in a dreamy, stupid state, his only token of active life, the constant twirling of his thumbs. A refined and intelligent gentleman on the same hall, who was recovering from the results of an overworked brain, came to me one day, exclaiming with no little agitation, "Doctor, I *must* go home!" I remonstrated, urging his rarely good prospects of a speedy recovery. "Why should you go?" I asked. "Because," said he, "this continued rainy weather has kept me in doors for a fortnight. I am in your way, in

your business rooms. I have worn out the hospitality of Mrs. Butler, up there, seeing that poor old fellow twirling his thumbs hour after hour! day after day! I can't stand it! D—n it, I shall be just like him!" My continued experience ever afterwards strengthened my convictions of the expediency and indeed, humanity of the segregation of the chronic insane from the recent and hopefully curable cases. I was compelled by this conviction to present this question to the consideration of the Association at the meeting at Pittsburg, in 1865.

Individualized treatment is called for in insanity as imperatively as in the case of acute forms of other physical disease. The form of treatment is different according as the practitioner is hopefully working for a cure in an acute case, or as in some chronic case of long standing, he is simply administering palliation and general care. The first requires his personal and persistent attention, the second may be treated in a general way and may be committed to others.

I believe strictly recent insanity in very many cases, is radically curable under the prompt, persistent and united use of medical and moral means. These, to be efficient, demand individualized application, *i. e.*, that same, immediate, close and sharp personal service which the successful general practitioner necessarily gives to the early stages of typhus, diphtheria, cholera, etc. This power, essential to the largest success, is limited, as in all individual efforts, by number. Applicable to the few, it cannot be extended to the many. While here and there it may reach one in a crowd, the general result proves the limitation. In addition to professional skill the largest success of individualism demands that combination of those innate, inherent qualities of "courage, kindness and patience" which the *Edinburgh Review*, in April, 1814, attributed to William Tuke as the secret of his success in the Retreat for the Insane in York, a "success" which remains to this day, our highest instruction! As no two cases of insanity or physical disease

are, in all cases and effect, precisely alike, the peculiarities of each will of course demand special consideration.

Dr. Conolly, in his admirable essay on the "Indications of Insanity," speaking of the duties of medical men, says (page 428):

To superintend with care and without offending; to control without severity, and to indulge without weakness; to attract without fatiguing the attention; to revive the memory without reviving memories of affliction; to touch the imagination but not too sensibly; to encourage at favorable moments to such comparisons as may triumph over retreating delusions, is a task too delicate, too sacred, I might say, to be entrusted to common hands. It is a power which *cannot be delegated*.

The best definition of the alleged power of individualism to charm down insanity is that given by Emerson as, "The power *behind* the eye."

The chapel,* the amusement hall, the social circle inside and the social circle outside of hospital wards have, in my experience, proved potent remedial agencies. Under such influences I have frequently detected the first indications of recovery. It seems self-evident to me that these details of moral treatment can be most successfully applied only in a hospital of the originally assumed "best number" of two hundred inmates. Here can be most easily developed those social influences which have such special power over diseases of the brain and nervous system. In such comparatively secluded lives the natural cravings for sympathy and companionship, most readily attract those genial affinities which lead to the formation of little homelike circles of newly found friends. The happiest results can often be traced from such

* "Though it is the first time for years that many of our inmates had been thus recognized as members of the human family, their fixed attention and serious deportment is a pleasant illustration of the adaptation of the Gospel to 'all sorts and conditions of men.' The utility of their influences shoud be undoubted. No one can look upon our household assembled for the instruction of the Sabbath, or for the family worship of the evening, and see them there as one family rise up silently and reverently to pray to 'Our Father in Heaven,' without realizing that some feel the solemnity of the act, without being convinced that a chord may be struck, whose ultimate vibration may awaken some recollection of early life and bring back upon the excited and bewildered mind some calm and solemn influences, and give that one moment of self-control, in which the first link in the chain of diseased associations may be broken."—*Boston Lunatic Hospital Report*, 1840.

circles. The reaction of mind upon mind, comparison and discussion, with criticisms, sometimes happily sharp they may be, but ever kindly, have here their place. The desponding are comforted and made hopeful, and the excited are repressed and instructed by the cordial and kindly comments of the convalescent and experienced. If all these desired good effects do not *immediately* result, they certainly remove at once that greatest evil of lunatic hospitals—monotony. Dr. Tuke, in his admirable “Illustrations of the Influence of the Mind Upon the Body,” speaking of the importance of this power as a practical remedy in disease, quotes John Hunter, as follows:

There is not a natural action in the body, whether voluntary or involuntary, that may not be influenced by the special state of the mind at the time.

The variety of ways by which one may promote the interest of the insane happily illustrates the many-sidedness of truth.

The same appliances that tend to make life in a well-ordered house beautiful and happy may be brought to bear upon the disordered mind; and its wanderings and vagaries be arrested by putting it as nearly as possible in relations like those of private secluded home-life. The great caravansaries we call hotels are not homes, neither do the immense structures we build as hospitals, however well kept, tend to promote the home content, and to awaken those sweet and restorative feelings that belong to home itself.

“How clean and nice this room is,” said a director to me, one day, in one of the old, rigidly plain halls, long before the reconstruction. “Yes,” I answered, “the floor, the bed, the walls are white—if not white as snow—white enough to chill the heart of the delicate, refined young mother who is to occupy it to-day.” “Why, what better would you have?” he asked. “All possible home-like ornamentation, neutral tints, pictures, flowers, etc., etc.; everything to give the room an inviting aspect, and

not painfully to remind her of that refined and *home-felt* room in which she has left her infant child." Bearing this in mind, when Mr. Vaux, the architect, came up from New York to examine the Retreat premises as to its reconstruction, he asked me, "What would you have me do with this old building?" "Reconstruct the 'Lunatic Hospital' thoroughly, and develop the 'Home' for the nervous and insane," was my answer. The result was a success.

In one of my earlier reports of the Retreat I stated that of one hundred and eighty-seven female patients last admitted, thirty-four per cent. were wives of farmers and mechanics—an undue proportion of these classes in the State. Many were young women, leaving nursing children at home. In these cases it had naturally followed from the sequences of child-bearing and child-nursing; the too frequent entire absence of all or of only the brief week's service of the "monthly nurse;" the accumulation of household duties and drudgeries; narrow and near-sighted economies, and absence of needed relief of change and recreation; that the exhausted wife lost, in due time and course, her appetite, sleep and general strength, and consequently her self-control, and was compelled to seek the recovery of all in the Retreat. The very large majority of these cases were returned to their families in good physical and mental health; the avoidable causes of their insanity frankly and plainly explained to them and to their friends, with instructions for their future avoidance. While remedying the marked physical disorders and debilities which, almost without exception, were found to exist, I patiently sought to gain the confidence of each one by the persistent use of individualized, moral, as well as remedial, treatment, gradually winning their sincere trust by sympathy with their condition, seeking to relieve it by pleasant and varied occupation, recreation and amusement, all evidently for the one result of promoting their restoration to health and home duties. From this confidence there naturally came out to me the

simply told stories of home, cause and effect—stories that were of lives more patient, unselfish, devoted, and oftentimes tragic than any novelist, but one,* has ever portrayed. I could fill page after page with these pathetic illustrations of the causes of insanity. I often found that the instructions given to these patients, when discharged, and to their friends, prevented the recurrence of their insanity. The experience of both parties, together with the earnestness with which they urged others similarly afflicted to trust themselves to its curative influences, with the frequent tokens of their grateful remembrance of benefits conferred, did much to dispel the too common, yet causeless, dread of the Retreat.

If circumstances, in despite of experience and instruction, compelled them to be again exposed to the same malignant influences, would the consequent relapse and readmission to the Retreat invalidate the first record of "Discharged Recovered?"

A healthy young fisherman, by needless and repeated exposures in the Cove, inducing an attack of acute rheumatism, "hereditary" in his family, is admitted to the Hartford Hospital. He is successfully treated, and in due time discharged recovered. If, in two or three years afterwards, disregarding experience and professional advice, he repeats the exposures, induces a return of rheumatism, is again admitted, and again discharged recovered, does the last record annul the primary one of recovery? and if not, why should not the same law of reported results, valid at the Hospital, obtain across the street, at the Retreat for the Insane?

An eminent writer (Huxley) points out that—

In the present rapid growth of the minutest branches of most of the sciences, and the consequent tendency to narrowness which this diminishing scale of research seems likely to invoke, all men of science should be primarily so educated as to secure breadth of scientific education without superficiality of knowledge, as the best security against the natural danger of drifting into narrow specialties.

In view of the largely increasing varieties of disorders

* Rose Terry Cooke.

from which insanity may originate, and of the many new remedies, in addition to the better knowledge of the old, which come to the aid of medicine in the progressing art of preserving and restoring health—the broader reachings of prophylactic and therapeutic agencies—the practical alienist should possess not only a readily available knowledge of all this, but keep a careful watch over the possibilities of the future. The comparison of the Dispensary (or “Bigelow’s Sequel,”) at the date of my graduation, in 1828, with that of to-day, naturally suggest the possible future of some of the one hundred thousand weeds “whose virtues,” Emerson says, “are yet to be discovered.” Certainly most, if not all, the original thirteen members of the Association, had a large experience in general practice before assuming special charge of the insane.

Dr. Parkes says: “Hygiene aims at rendering growth more perfect, decay less rapid, life more vigorous, death more remote.” The acceptance of this art or science of preserving health has within the past thirty years added nearly four years to the average life of the men and women in England. The humane and scientific researches of Dr. Bowditch, of Boston, have largely limited the ravages of consumption in New England. The establishment of thirty-one State Boards of Health in the United States, since that of Massachusetts, in 1869, and the increasing acceptance of the vital necessities of sanitary reform, all lead us to hope that ere long consumption, malaria and insanity, with many other formidable enemies of health and life, may be met by some new antagonistic power.

In measuring our means of arresting insanity we must accept the science of prevention as a higher power than the science of remedy, a power to be looked for outside the wards of a hospital. “True medicine,” says Dr. Richardson, “now stands boldly forth to declare the higher philosophy—the *prevention* of disease.” “Our art,” says Dr. Bowditch, “looks still higher, to the prevention as well as the cure of disease.” Prevention

justly takes precedence. Very many of the ordinary causes of insanity may be easily avoided, and, if needlessly induced, may be readily overcome. They are the natural outgrowth of heedless or ignorant violation of well-established laws of hygiene—laws that should be intelligently taught in every common school in the land. There are other causes of far graver import than they at first suggest, where prevention demands that the earliest symptoms should be promptly recognized and efficiently treated. Dr. Tuke says:

The prevention of disease is the first and most earnest intention of medical science in all its departments. The prevention of mental disease is clearly within the scope of the physician's highest aim.

He further says:

No medical forethought can prevent the occurrence of insanity from accidental causes, but a vast proportion of the insane become so in consequence of physical conditions of life and modes of living, which lead to the result as certainly as unsanitary conditions of physical life lead to typhoid fever or tuberculosis. It is in such cases that a prophylaxis can sometimes be established. Moral treatment is the true prophylaxis. If the most favorable instances of these ailing minds are brought under the influence of strong and healthy minds, the fearful heritage may oftentimes be avoided.

Dr. Conolly dwells at length upon the effects he has witnessed from the "individualized treatment"—the influence of a sane, addressed to an insane mind.

In the application of moral treatment it is of vital importance so carefully to scrutinize the environment of each patient as to avoid as far as possible all depressing or exciting influences. All accept the axiom that cheerfulness and sympathy in any sick-room promote the best working of remedies, in the wards of a lunatic hospital, remedies avail little without their coöperation. I have found few things more depressing and harmful to the recent and hopefully curable cases of insanity, than even the sight, and much more, the association with the demented and hopeless. To such cases (excluding the few the severity of whose disorder prevents any realization of their condition), finding themselves in the

bewilderment of such surroundings, their natural conclusion is: "I am one of a hopeless crowd; what better chance can I have of recovery?" The number of patients in some of our State hospitals exceeds the population of more than each one of forty of the towns of the State of Connecticut. In several the recent case on admission becomes the legally committed citizen of a community whose annual official report records more discharges by death than by recovery from insanity. Classified, however, carefully, as the multitude may be, the different individuals must come frequently in contact in the chapel, and in the means of their recreation and amusement. With such immediate surroundings the recent case can hardly look from his window or step out of his door without seeing or hearing some hopeless victim of a disease from which he has fainting hopes of his own recovery. Reason as you may with him, for the present time, at least, the "twirling thumbs" will beat down your sanitary arguments.

We believe that absolute segregation* is possible, and is consistent with a large economy in construction and in current expenses. The telegraph, the telephone and the tramway may bring the annex of the main hospital sufficiently near, so that out of sight and out of hearing, at the distance, more or less, of a mile, these apparently separate institutions are within easy reach of the sharp supervision of the chief superintendent. Again, the query may be raised whether, in the continued growth of very large institutions, there may not be developed in the future a school of hospital specialists, simply executive officers, skilled in economic management and training, instead of broad, earnestly-sympathetic and versatile physicians of large experience, through study of individual cases.

Our position is amply confirmed by authorities who

* We are largely indebted to Dr. Dewey, of Kankakee, Ill., for a most timely article in the *ALIENIST AND NEUROLOGIST* of January, 1884, giving an exposition of the rise and progress of these separate systems of "Congregate" and "Segregate" buildings for the insane, *i. e.*, the connection or separation of the different classes.

have the right to speak and to be heard. At the meeting of the International Medical Congress in Philadelphia, in 1876, Dr. Ray said:

As the result of my own observation and experience I am convinced that four hospitals of three hundred patients each can be both built and maintained at a less cost than one of twelve hundred patients, equal provision being made in both cases for the kind of care to which the insane, even in the lowest grades of the disease, are entitled.

Again he says:

I doubt whether it is possible to have in these mammoth establishments certain qualities of administration indispensable to their highest purposes. The animating spirit, the close, thorough supervision, inspiring, guiding, correcting every movement, and essential to our highest ideas of hospital management, will be but feebly maintained under such conditions. The patient is but an atom in the great mass around him, losing the attributes of humanity, sane and insane, in the technical character of patients.

At the same meeting Dr. Kirkbride said:

It is fully shown by reliable statistics, as I believe, that the people of the State will derive more benefit from several small hospitals in different parts of the State than from one large one at a central point. And I think it will also be found that the former can be provided with quite as small an expenditure of money, and could be carried on at no greater cost per patient. * * * * There is one advantage in these smaller hospitals I cannot avoid referring to, and that is the personal intercourse which a superintendent is able to give to his patients when their number is not so great as to prevent his paying daily, or very nearly daily, visits to each. I believe this to be one of the most important of all his duties, and one which, certainly, if he is rightly constituted for his position, *no one can do for him.*

Dr. E. C. Seguin, of New York, in a letter to a member of our Legislature, 1880, says:

The vast majority of the insane are afflicted with chronic and incurable disease. They need only humane treatment, the largest possible amount of personal liberty, plenty of occupation, some amusement, the plainest quarters, and the simplest diet consistent with the demands of modern hygiene. They do not require the attention of as high a grade of medical talent or as numerous and skilled attendants as do acute cases. They can, I believe, be well taken care of at a comparatively small cost. It seems a reckless waste of money to build palatial hospitals to be filled with incurables. * * * The curable insane need the highest medical skill which a large salary can attract; a much larger number proportionately of assistant physicians selected

by severe examination; many real nurses, not mere attendants or guardians. They require the best food, with the liberal use of costly medicine, etc. It is economical and humane to spend money freely in order to facilitate recovery.

An intimate knowledge of the condition of the insane for more than half a century has given me an increasing sympathy for them as the most grievously afflicted of the human family. Both my experience and observation since the meeting of the Association in 1844 have convinced me that the great and unexpected changes in their numbers and relative condition demand some modification of the original propositions. That which gave two hundred as the preferable maximum of patients to be treated in one building, may again be as wisely accepted in connection with a new classification.

In conclusion, let me quote from Dr. Ray, one known to us all, and best esteemed and honored by those who knew him best, and who, in his description of the "Good Superintendent," has given us a most happy photograph of his own hospital life:

The "Good Superintendent" constantly striveth to learn what is passing in the mind of his patient, by conversation and inquiry of those who see him in his unguarded moments. He also maketh diligent inquiry respecting the bodily and mental traits of his kindred, knowing full well that the sufferer is generally more beholden to them than to himself, for the evil that has fallen upon him. He endeavoreth so to limit the number committed to his care as to obtain a personal knowledge of every wandering spirit in his keeping. He boasteth not of the multitudes borne on his register, but rather, if he boasteth at all, of the many whose experience he has discovered, whose needs he has striven to supply, whose moods, fancies and impulses he has steadily watched. To fix his hold on the confidence and good-will of his patients he spareth no effort, though it may consume his time and tax his patience or encroach seemingly on the dignity of his office. A formal walk through the wards and the ordering of a few drugs compriseth but a small part of his means of restoring the troubled mind. To prepare for this work and to make other work effectual, he carefully studieth the mental movements of his patients. He never grudgeth the moments spent in quiet, familiar intercourse with them, for thereby he gaineth many glimpses of their inner life that may help him in their treatment. Among them are many sensible to manifestations of interest and good-will, and the good physician esteemeth it one of the felicities of his lot that he is able to witness their healing influence. He maketh himself

the center of their system, around which they all revolve, being held in their places by the attraction of respect and confidence. To promote the great purpose of his calling he availeth himself of all his stores of knowledge, that he may converse with his patients on matters most interesting to them, and thereby establish with them a friendly relation. The unwelcome communication he ever tempereth with soft and pleasant words, thereby verifying in himself that saying respecting a worthy of old that he made a flat refusal more agreeable than others did the most thorough compliance.

In my Report of the Retreat for 1860, I remarked that over three thousand cases of insanity have now come under my direct care and observation. In a large proportion of those cases whose history I could obtain, I have found that the remote and predisposing causes of insanity could be plainly traced to the malign influences of childhood.

In this connection I quoted the following from General Oliver's Report to the Massachusetts Board of Education:

While we abundantly provide for the thorough training of the mind, we almost wholly neglect the training of the body, and the effect of this pressure upon the intellect without corresponding pressure of the body is that the latter suffers, and by degrees the feebleness which is generated by this want of proper physical exercise of the body extends to the mind; for the twain are in incomprehensible mystery of connection and each is participant of the other's strength or weakness. So then the mind becomes less vigorous by reason of the fading vigor of the body, as the body is always weakened by the fading powers of the mind, and each gradually participating in a gradual antagonism to the efforts of educators and the efforts at self-education. This is especially true of our girls. Our boys indulge more in vigorous and active exercises. Athletic sports are full of interest to them, and into them they go with a rush and a relish and a heartiness of fun most cheering to behold, and most excellent in its influence upon their bodily health. But of how little physical exercise do our girls partake, and how quick are we to check any propensity to activity in play and to any romping gambols, or vigorous recreation on their part. * * * * * I venture to say that not more than one girl in ten nowadays enjoys real sound, rugged health, and surely that is a very unwelcome statement about those who are expected hereafter to be helpmates to husbands and mothers of children. * * * * *

In an admirable article upon Insanity and Hospitals for the Insane, prepared for the National Almanacs, Dr. Earle remarks:

That it is not the regular employments of mankind which are

the most prolific causes of insanity. It is rather those habits, customs and other influences which minister to his appetites, stimulate his passions and most powerfully operate upon his sentiments.

Intemperance of all kinds, debauchery, self-abuse, all high popular excitements whatever may be the subject, these excite and exhaust the nervous energy, and grief, anxiety, troubles, difficulties and disappointments greatly depress it. To these influences then we may rightfully look as among the most powerfully exciting causes of the disorder in question.

In the thirty-ninth of the Retreat's reports it will be seen that of nine thousand four hundred and seventy-three cases, as given by Dr. Earle, being the total of all cases admitted in four prominent hospitals wherein the causes of insanity were given, seven thousand five hundred and ninety-one, or four-fifths of the whole, were the results of some one of ten causes, all of which were such as exhaust, debilitate or depress the vital or nervous energies. A sensual and selfish, or idle and aimless life, must inevitably act as a predisposing cause to the development of one or more of these causes. In a large proportion of the cases which have come into my care insanity might have been prevented by the use of well-known measures, or natural and right development of body and mind, wise aims in life and a reasonable exercise of self-control. The power of the will to control the insane impulse is great, but its power to effect this result must be trained and be made conscious of its supremacy. The question, therefore, how shall I escape insanity? is one capable of a more direct and explicit answer than many parents and educators of youth seem to imagine.

It follows, as a necessary consequence, that whatever makes us better or wiser, gives us more correct views of our duties to God and our neighbor, and at the same time gives us more courage, strength and willingness to do that duty, places us so much more beyond the reach of these causes of insanity, and gives us also the greater ability to resist successfully the attacks of this disease when induced by causes beyond our control.

Insanity, as a strictly physical disease, comes eminently within the range of preventive medicine. When our proposed and thorough system of State sanitary registration in Connecticut is carried out (if ever), and each case is reported in its earlier stages, we may hope to attain a more accurate knowledge of the predisposing and exciting causes of this malady, which is filling our lunatic hospitals faster than we do or can build them. We can also more efficiently apply the means of prevention and remedy, when we can better measure its various causes, erroneous educational and social influences, neglect of family training to reverence and obedience, sensational reading, evil habits of body and mind, idle, aimless, or sensual life, and learn more exactly, as we shall learn, how very early in life the predisposing causes of insanity are implanted in the child.

During the present century, no greater progress has been made in any department of philanthropy and science than in the direction of the better care and treatment of the insane. A greater work remains to be done, a work greater than cure or kindly care—that of prevention; a work, which in order to be of the highest success, must reach back often to the early life, the family, the nursery and the school.

The question before us to-day is, not only what can the State do for the chronic insane, but the wiser and more timely question, how can we prevent insanity?

The neglect of physical training, and the imperfect physical development which follows from this neglect, were strikingly evident in many of my female patients. The various causes which were reported to me as the sources of disease, and which are classified in the tables under the head of "ill-health," "undue mental effort," "grief," "domestic unhappiness," etc., could very frequently be traced, in their primary influences, to the one cause of a want of physical stamina. We press the training of the mind, by all possible hours of study in and

out of school, and by the added stimulus of emulation, while we neglect the training of the body, in disregard of that mysterious but absolute law of sympathy, which compels the debility of the latter to cripple the action of the former. In the same line, is the prevention of excitement so happily illustrated in the Northampton Hospital by Dr. Earle, where the busy day on his thoroughly cultivated farm, followed by a quiet night, illustrates, happily, the sanitary results of wisely directed occupation.

Life has been compared to a line—that of birth, the point of origin, that of death, the point of termination, the length of the line between being an uncertain quantity under a supposed secret and inexorable law, over which we were ignorantly believed to have no control. The history of the human race has ever testified to the incessant craving of the heart that “our days may be prolonged in the land.” The Science of Preventive Medicine justifies this innate desire by demonstrating that it possesses the power to give a longer extension and a more definite and certain quantity to this “line of life.” We are told that the days of our years are three-score years and ten,” and that if we are deprived of the “residue of our years,” and do so generally fall far short of that attainment, it will be well for us more carefully to regard that wonderfully true and perfect sanitary code given to the Jewish nation and recorded for our instruction and guidance in the Holy Scriptures, and remember through their obedience to those hygienic laws, “He increased the people greatly, and made them stronger than their enemies,” and when he brought them forth out of the land of Egypt, “there was not one feeble person among their tribes.” Nor one insane!

In many of the insane the power of observation is active and the understanding has a considerable range of exercise, while the affections exist as warmly and the sensibility is as acute as in a state of perfect mental health. The utmost care therefore, should be taken to act

on what remains of intellect, wisely to direct the impaired faculties of the understanding and at the same time to cherish and govern the affections by all the resources of compassionate protection.

To suppose that the inmates of a lunatic asylum must necessarily be in a state of continual unhappiness is as erroneous as to suppose the asylum itself a place only for confinement and suffering. There is a wonderful diversity in the manifestations of this disease, each case having its peculiar character; the melancholic, who supposes God has forsaken him for time and eternity, the excitable, defying all law but his own sovereign will, and those who, less gravely affected, are yet unfitted for the duties of life and are waiting, with more or less of patience and resignation, the time of their recovery.

Now, as amusement and recreation are essential to the preservation of the health of body and mind, and as their genial influence is fully appreciated by us during the convalescence from an ordinary illness, how much more sensitive to their effect must be those who are suffering under this graver disorder.

While to the insane, all their delusions are as real as they are, in truth, imaginary, none but those who are in constant converse with them can realize how material is the result of an intimate personal intercourse. I daily saw some cloud brightened, some terror banished, some wearisome burden lightened, by a few words of advice, of cheer, of consolation, or of sympathy. That asylum for the insane is poorly cared for where the wants of the body are alone abundantly supplied, while the cravings of the heart are left unappeased. Far better, in my view, to banish all other remedies from the wards of such an asylum than to leave them destitute of that practical, personal sympathy, whose hearty sincerity so directly tends to the larger development of hopefulness and self-control.

In some varieties of this physical disease (insanity) some articles of the *materia medica* are, in my opinion,

essential to speedy or to permanent cure; in many more, they are useful, soothing, pleasant adjuvants; but these moral means are so pleasant in the using, they so soothe the heart weary with long waiting for health and home, banishing, for a time, at least, those delusions which make the worse appear the better reason. I claim that both of these remedies are essential to the best curative treatment.

Amid the weary hours of sad or fearful imagining, music, games, all social or intellectual gatherings and recreations, excursions, changes of scene and localities, art, in its various forms of beauty, pictures, engravings, statuary, and, above all other things, flowers—they are ever most welcome.

Dr. Poole, of the Montrose Asylum, says:

After the obliteration of reason, many of the highest feelings of our nature remain, to which a successful appeal may be made, and those by which we are connected with a higher sphere of existence, admit as readily of being awakened, on the proper object being presented to them, as the ordinary passions under which the lunatic acts. Their influence is, in the highest degree, consoling, and congenial to the return of mental strength and serenity; the effects in each individual are probably as different as in the members of an ordinary congregation.

I cannot forbear quoting the testimony of the Rev. Dr. Gallaudet, for many years chaplain of the Retreat:

How many torpid sensibilities have I seen awakened to respond to the impressions of the fair, the beautiful and the good; how many consciences aroused to a sense of the right and the wrong, so as to produce the power of self-control and of proper conduct; how many slumbering domestic and social affections kindled up into their former activity; how many religious despondencies, sometimes deepening into despair, changed into the serenity of Christian hope; how many suicidal designs forever abandoned, because life had become a pleasure, instead of a burden too heavy to be borne; how many prayers revived at the altars of private and public devotion; how many kindly charities of the soul breathing forth, once more, in deeds of self-denying benevolence.

Amid the vestiges of reason, the affections and the sensibilities sometimes exist as warmly and as acute as ever, and, in many cases, the same high and ennobling results may be attained as from the operation of similar

causes upon individuals under ordinary circumstances. Leaving out of the estimate all other results, my fifty years' experience, thirty-three as superintendent, have confirmed the opinion, early expressed, of the benefits of this influence as a remedial agent. Any deviation from good order and propriety, during chapel service, has been no more frequent than interruptions from impatient and undisciplined children during "meeting" in the country. (I must remark that it is self-evident that the chaplain should be like the assistant physician, the direct appointee of the superintendent).

In a brief recapitulation of the lines of thought in general, he says:

1. Institutions for the insane were at first only founded for public relief, and without the idea of benefit to the insane.

2. It has always been a too general impression that the insane are essentially different from the sane in everything, instead of the fact being recognized that they possess natural traits and activities, which are, however, modified through the agency of disease, wrongly directed or held in abeyance; and this mistake has been very mischievous in its effects upon the provision for them, preventing the supply of a natural and domestic abode, adapted to the varying severity of different degrees and kinds of insanity.

3. The essential difference between an institution for the insane and all other institutions, in confining and controlling those who are held as prisoners without being guilty of any offence, and who are entitled to the utmost privileges and consideration of their wants, without possessing in the eye of the law or in the exercise of reason, the ability to enforce their claims, was long overlooked, but has come to be more fully appreciated.

4. Gradually insanity has come to be recognized as a disease, hospitals have been founded, mainly for curative treatment, and the congregate asylum has been developed, admirable for its purpose, but not adapted for universal application to the entire body of the insane.

5. Finally, the infinite variations among the insane, in the manifold forms of the disease; in the degree of reason and self-control possessed by different individuals or characterizing different groups of the insane as a whole; in the various classes of private and pauper, criminal and innocent, epileptic, inebriate, etc., are beginning to be more fully understood by the public and the medical profession, and a variety is being introduced in the erection of buildings, as to location and internal arrangement, by which an appropriate environment for each and all is sought to be attained, while, at the same time, the opinion gains ground that the domestic or "segregate," as contrasted with the "congregate" or institution idea, should prevail for a large

portion, in providing for them economical and substan'ial buildings, with as much of the house-like and home-like character as in each instance the fact of insanity would permit.

We have here one of the many good evidences that from the first of the organization of the Association, its members have accepted the teachings of Dr. Arnold, that, "Nothing is so wrong as the strain to keep things fixed when the whole organization of law and order is one of eternal progress."

MECONEUROPATHIA.

By C. H. HUGHES, M. D., St. Louis.

THE long-continued use of opium or its salts (in any considerable quantity) engenders a disorder of the nervous system which is entitled to distinctive recognition. Its sequence is as much a pathological entity as alcoholism, saturnism, hysteria or chorea.

Meconeuropathia is as much entitled to recognition as that well-known disease, epilepsy, whose clinical features medical science has so much better portrayed than its distinctive pathology.

The reputed pathology of disease is subject to change, dependent upon the modification and improvement in method of study, and the manner in which, from time to time, the profession views the revelations of science as to morbid products and necroscopic appearances, and their relation to the pathological processes which may have preceded or followed them. Witness, in illustration, the changing and changed views of the pathology of phthisis and cholera, which just now are generally supposed to have but little to do with the nervous system, though the state of the nervous system has, in my opinion, very much to do with them, notwithstanding their bacillian relations, which, though generally recognized, are yet not definitely settled.

Whether bacilli make these diseases or these diseases furnish the congenial soil for the bacilli, is sufficiently contested, in certain 'quarters, to warrant the assertion, whatever may be our individual opinion, that the final pathological relations of bacilli to phthisis and cholera, are not incontestibly determined and universally settled in the professional mind. Yet we accept phthisis pulmonalis and cholera Asiatica as facts, notwithstanding we may still discuss their respective pathology.

The writer has long been familiar with the distinctive symptomatological sequences of chronic opium poisoning of the nerve centers, having had abundant opportunity to see the neuro-psychic phase of the malady during his connection with the asylum for the insane, at Fulton, Mo., as superintendent and physician, from 1866 to 1872, and of observing them since the latter date in a practice which has grown sufficiently neurological to occupy the writer's whole time, to the exclusion of other diseases. He has deferred the present communication in the hope that he might reach a more satisfactory conclusion than that which he now holds, respecting a definite pathology for meconeuropathia.

Under the title of chronic meconism he has discussed this disease heretofore in its symptomatological grouping, in considering its treatment, but has never emphasized, as he does now, in this communication, nor has anyone else so emphasized the fact, that the long-continued and uninterrupted impressions of opium upon the cerebro-spinal and allied ganglionic system engenders a state of undoubted neuratrophic and combined specific poison-impairment, which persists a long time after the abstraction of the drug, and which is immediately apparent in its intensest form upon its abrupt withdrawal.

This condition and its symptoms are to be differentiated from the symptomatology of the direct and daily renewed opium stimulation, which marks the graver condition and its symptoms, while the patient's blood holds the abnormal excitant in solution in the circulation.

The opium habituate maintains a semi-physiological condition while under opium influence. It is only when it is taken away from him that the true and pathological condition of his psychical, sensory and ganglionic nervous systems, especially, become apparent. Remotely, it is the poison that has made the trouble. Immediately, it is the repetition of it in quantities and at intervals to which the abnormal nerve centers have become accustomed, that masks the real malady and give the patients relief.

It is of the utmost importance, in practice, that we should recognize the undoubted fact that opium habitually taken into the system engenders a neurosis, a psycho-neurosis, at the same time that its administration palliates and subdues this psycho-neurosis for a very long time, if given in gradually augmented doses.

It is not to recent poisoning that the opium neurosis is due, but to a slowly brought about change, which persists long after the opium is withdrawn, if the patient do not perish from too sudden abstraction of the drug, and blind and unwarranted reliance in a *vis medicatrix naturæ* (which is not present in these cases) for self-rectification, as I have known to occur in some cases, and as I believe occurs in many more cases than are recorded, the death of the patient being attributed to causes which are supposed to be disconnected from the meconophagism, but which are really the result of it, such as cardiac paralysis, neuralgia of the heart, and angina pectoris, so called.

Obersteiner, a German physician, advocates abrupt withdrawal—a practice, which, from extensive observation of attempts made by other physicians with cases, which have come into my hands, and from desperate self-attempts of my patients to quit the habit of opium suddenly and from a knowledge of fatal results from this practice—I most unqualifiedly and emphatically condemn as unscientific and cruel, in view of the persisting morbid sequelæ of opium addiction. It is an inhuman and barbarous practice. When the habit is of recent standing, the quantity taken is small and the consequent central nerve-impairment so slight as to leave the nervous system in a state of almost physiological recuperability, of course the abrupt weaning process may then be considered, and if the results of a greatly shattered nervous system do not appear within thirty-six or forty-eight hours (for some patients take but one large dose of ten or twenty grains of morphine a day whose impression lasts for twenty-four hours), it may be tried and maintained.

The opium neurosis we are considering is not an

intoxication from the drug, but a central neurotic change, brought about by the long persisting perversion of function and impairment of central nervous nutrition, from its persisting presence in the nutrient pabulum of the circulation.

The psychosis of opium is a blended intoxication and chronic poisoning of the psychical centers of the brain; other symptoms of acute opium poisoning are essentially different, being mainly a profound paralysis of sensation and of the centers of involuntary motion especially having their origin in the medulla and upper part of the spinal cord—profound narcosis, lowered respiratory movements, etc., while chronic opium poisoning, or meconeuropathia, is characterized by repeated nerve excitations, in which the nerve centers, not being completely overcome, a kind of tolerance is established, with progressively developing abnormal molecular neural changes, which are as repeatedly covered up and masked by the renewed doses, till some sudden deprivation of the drug or failure to appropriate it, reveals, in full force, the neural mischief which has been gradually done. Opium, like a bank defaulter, both makes and masks the mischief done, which may be kept concealed so long as he stays in the institution.

In former communications the writer has discussed the effects of opium as a toxic psychosis (*vide* "The Opium Psycho-Neurosis," ALIENIST AND NEUROLOGIST, Jan. 1884, and paper before the St. Louis Medical Society).

The purpose of this paper is to give emphasis to those neuropathic features which entitle it to distinctive prominence in the nomenclature of disease.

Within a period of from ten to twenty-four hours, after twenty-four or thirty-six hours in rare cases, after the last dose of the accustomed stimulus has been taken, a singular psychical and physical restlessness becomes manifest. The patient becomes ill at ease, cannot sit or stand or lie still, moves or tosses about, and his or her attention cannot be steadily engaged by ordinary conversation.

Later, the restlessness intensifies. At this stage the patient will evade you, or seek some excuse to get where the missing morphine or opium prop can be found. He will, at this juncture, go clandestinely to the place where the vial, or powder or pill or deadly hypodermic syringe, is secreted, or make a pretext for visiting the nearest drug store or doctor. If to the latter, the victim has a ready-made story of a painful, fictitious malady, for which opium or some of its preparations, are prescribed. A convenient diarrhea, a sudden painful cough, a toothache or neuralgia attacks him. When the opium is out of him, he suffers real pain, but it is only *meconalgia*—the pain of opium withdrawn—the pangs which follow in the trail, and not from the fangs of the opium serpent.

If the patient is not suspected and under restraint, a ruse of this kind is successful, and the further progress of the symptoms is arrested by opium suppression.

But if the symptoms are not thus subdued, the mental restlessness passes in furtive glances of transient morbid suspicion, which soon pass into spectral illusions, hallucinations and delusions, and later into delirium, with marked agitation and sometimes slight tremors. The character and fright are not extreme, like those of alcoholic delirium, and the delirium is less easily broken than that from alcohol. The character of the transitory insanity following sudden opium withdrawal will be modified, like insanity in general, by the constitutional susceptibility and tendencies to insanity in the person. The hysterical diathesis will be unmasked in some cases, conditions bordering on true mania and despairing melancholia and suicidal tendencies will appear in others, while in others only wretchedness, mental confusion and fleeting illusions will appear, but in all there is head disturbance, approximating delirium and threatening insanity. This is the psychical picture, which in a not very limited experience, morbid nature, deranged by chronic opium poisoning of the brain, has always painted for me.

The lower neuropathic features are the following, with but little variation in all the cases which have come under my observation:

The general nervous agitation increases as the patient gets further away from the last remnant of narcotic support, when the opium has passed out of the system and finished its morbid mission within it. The limbs, especially the forearms, ache and pain, somewhat as if the patient were attacked all over with a severe muscular and arthritic rheumatism combined, and darting, lightning-like pains traverse the peripheral sensory nerves. This is only an approximate description of the pains, for the pains of the opium neurosis are as peculiar as those of locomotor ataxia, and preferably occupy the upper extremities, as those of posterior spinal sclerosis, are found chiefly in the lower limbs. Cold sweat and profuse, appears over the body, the enteric vaso-motor system seems paralyzed, and an exhausting diarrhea, at first loose and fecal, and finally watery, sets in. The patient feels as if dissolution were imminent. His tongue is furred and mouth clammy, the preternatural brilliancy which the eyes may but the day before have shown, is changed into a muddy, leaden appearance, with a look in them of hopeless despair. The tense facial lines of the patient under opium are markedly relaxed when its influence is gone.

The heart beats fast and feeble, but the temperature frequently falls a degree or two below normal, but I have never seen it mount rapidly above 98.30° .

The respiration falls in frequency and becomes gaping, but it rarely becomes extremely slow and deliberate as in acute opium poisoning. The sclerotics in most cases, when the opium habit has not extended over many years, have a fairly liquid transparent look. The reflexes are exaggerated, and the patient has insomnia; or if there is drowsiness, it is an abnormal sort of somnolency of a delirious character, from which the patient starts at the slightest touch or without any excitation, in a fright.

Nausea and vomiting set in simultaneously with the

diarrhea; the bladder empties itself often; and every function under the control of the solar plexus seems to have lost its normal restraining influence.

The neural phenomena of the meconic neurosis below the head, in its crisis stage, resemble those of cholera nostras, excepting the pains in lieu of cramps being more diffused or confined more especially to the arms, while those of cholera are more frequent in the lower limbs, and I have no doubt that the cause of the symptom is in the exhaustion of Auerback's and Meissner's plexus, especially, in both diseases and in the semi-lunar ganglion of the sympathetic. The thoracic ganglia do not escape in either disease.

The head symptoms of the opium neurosis are essentially different from those of cholera morbus, and the enteric attack in the latter disease is far more violent and acutely destructive than in the former. The diarrhea and vomiting of the opium neurosis are more deliberate in character and are tolerated for several days, if unaverted by judicious medication, without fatal results, and are more promptly averted by opium given internally than cholera morbus, though it is surprising how effectually we may control cholera morbus by hypodermic morphia, though not so speedily as the diarrhea and vomiting of the opium neurosis. Opium is a congenial drug, in the diarrhea and vomiting following its withdrawal, and the certainty and promptitude with which it arrests the most alarming symptoms, even when given into a stomach that rejects everything else, is a diagnostic sign of the opium neurosis.

In the neurosis the nose does not become speedily pinched in appearance or the features so death-like and pale as they appear after a few hours of cholera morbus, and the voice does not get so husky or feeble.

I have seen a patient die of abdominal and cardiac dropsy following repeated self-attempts (always abandoned) to give up taking ten grains hypodermically a day; and I have known patients to die of heart paralysis after

sudden deprivation. I have never allowed these alarming symptoms to go on, in my own cases, but have begun at once to restore the opium to the normal quantity habitually used, till all symptoms of nerve failure have subsided, and then begun a rational system of gradual reduction, therapeutic substitution and reconstruction of the patient. The opium neurosis is not cured, even when the patient has been weaned from his accustomed drug, but he is often subject to neuropathical symptoms, and a proper subject for continued neurological treatment, requiring treatment for many months after cessation, to prevent a return to the use of the drug that damaged and enslaved. The patient is not safe from neural damage, even though he may never return to the drug, until he fattens some, feeds well habitually and sleeps much, and can resume his ordinary occupation without nervous fatigue and an inclination to take to opium or other form of stimulation. With this view of this disease it would be fitting here to protest against the substitution of some other form of stimulation for opium, abandoned or withdrawn, and when the disease-weakened nervous system has been enslaved by another stimulant narcotic, call that a cure.

There is a periodic form of morphia-craving, so much like periodical dipsomania as to entitle it to the term opio-mania, which develops in patients of neurotic temperament who have been given morphia or opium to any considerable extent. This shows itself sometimes in persons who have been broken of the opium habit, and these are the most hopeless cases to treat.

This periodic opio-mania is characterized by an overwhelming morbid craving for the drug, which comes on like the craving for drink to the periodic drinker, without warning, except a morbid restlessness and sometimes an irritable stomach, which a full dose of morphine—a third to half a grain—will appease, and if followed by a night of sleep, the craving will be allayed sometimes for a week, sometimes for a month. These cases should be studied

more than they are in the light of what we know of the periodic drink craving. They are easily developed by the administration of morphine or opium to neuropaths, in whose ancestry insanity and allied nervous diseases have been numerous.

But this is not the acute neurosis *sui generis* developed by repeated excesses in opium-taking, in the non-hereditarily neuropathic, but rather a less painful and less violent and more chronic and enduring form. From three to six weeks of abstinence, or abstinence and substitution combined, ordinarily suffices to cure the acute opium neurosis. The chronic form of the trouble is much more persistent, persisting oftentimes for a lifetime, because a dormant morbid heredity has been awakened into active life not to slumber again till the last sleep of life overtakes the unfortunate sufferer. The true opium neurosis sustains about the same relation to the chronic periodic form of opium neuropathy that alcoholism sustains to dipsomania.

Alcoholism is a morbid condition of the nervous system, developed by repeated alcoholic libations, dipsomania, a latent neuropathic condition, readily excited into activity by the poison. And the poison often develops this disease with surprising rapidity. These are the persons to whom a single drink is often dangerous and astonishes us with its consequences, because the latter are so extraordinarily disproportionate to the time the victim has been given to drink. Such persons become drunkards in a day, as it were; and persons like them become opiomaniacs or periodic opium-takers, or have for the intoxication insatiable desire after a few doses of morphia or opium.

The opium maniac, like the dipsomaniac, is prepared by inherent organic instability to be made so after one or a limited number of toxic impressions. In some instances he is as susceptible, by hereditary instability of psychical nerve elements, as powder or dynamite are to explode, needing only the exciting spark or concussion of a marked opium impression. But true meconeuropathia, or the consequences of prolonged and continuous meconism in

non-narcotic doses, so gradually induced that a kind of tolerance to the graver direct toxic effects is established, and the ordinary prompt narcotic effects are resisted by the organism, is, like chronic alcoholism, as contradistinguished from dipsomania, more gradually effected and developed by changes induced in the cerebro-spinal centers, through slow poisoning and nutritional perversion of neural tissue.

An acute psychosis resulting from opium in the blood in moderate quantities is, I am convinced from long observation and diligent inquiry, associated with inherent central nerve instability, often and most usually associated with the insane temperament, already actively displayed in some member of the family, and only dormant in the individual till aroused by the disturbing influence of the drug, and, like acute insanity, developed by alcoholic intoxication. Here both opium and alcohol become valuable diagnostic signs in our search for a dormant hereditary psychopathic tendency.

The sum of this subject, as thus only preliminarily and too cursorily presented, is this:

1. Single or a few large doses of opium cause an acute narcosis and well-known forms of physiological depression, which we are not here considering.

2. Under gradual habituation to increasing doses, acute, narcotic, ordinary toxic effects are, in great measure, resisted by the organism, and sensory analgesia, and psychical exaltation, followed by brain-weariness, somnolentia and sleep after each repetition of the dose, are the chief ordinary manifestations, with a final more or less impaired function of bowels, liver and skin, and with certain psychical features.

This is not the subject now claiming our attention. This true chronic meconism or papaverism and its characteristic symptomatology is due to the combined influence of a damaged and a poisoned nervous system.

3. A true acute psychosis is developed in the neuro-pathically inclined, as insanity is developed by a large

drink or two of some strong alcoholic beverage. This is the acute insanity of opium requiring two factors, hereditary predisposition and a central toxic influence to induce it. This we are not considering now.

4. A hereditary instability of nerve elements, lead some organisms to irresistibly crave stimulants at certain times, generally after ordinary nervous and physical exhaustion, and these are satisfied with alcohol or opium. If they happen to find solace in opium readily, they become meconophagists, or if alcohol first falls in their way, and the insatiate longings of their unstable nervous organisms find in some beverage containing it, the agreeable and temporarily satisfying impression their neuropathic organisms crave, their will (mastered by the lower dominant organic feeling) becomes a slave to the tyranny of a bad organism, regardless of consequences, and they enter, like the luckless DeQuincy, into an Iliad of woes.

But it is not this feature of the opium habit we are now considering, but rather the mark and impress it makes upon the central neural mechanism after the poison is no longer present in the blood, to mask or modify the symptomatic expression of the damaged neural mechanism.

This is the true meconeuropathia or morbid condition of nervous system engendered by the repeated and long-continued assaults of the toxic enemy on the cerebrospinal and ganglionic centers, and which comes on shortly after the withdrawal of the drug, and abides with the system long after the drug is taken away, especially in permanent psychical aberration and final dementia.

If we contrast the prominent symptoms of opium present and opium absent in meconophagism and meconopathia or meconeuropathia, we find in all cases, in the former, constipation, psychical satisfaction or exaltation, followed by drowsiness and sleep, analgesia, fair tonicity of stomach and skin. In the latter, we find always very loose bowels, requiring medical restraint after the first day. Relaxed and perspiring skin, nausea and vomiting,

sensory hyperesthesia of special senses, hyperalgesia, especially about flexor regions of forearm and about joints of lower extremities (true meconalgias) psychical depression and insomnia, psychical delusions of dread and of approaching calamities.

These symptoms may be modified by treatment so as to end in convalescence in the course of six weeks, and to disappear entirely in the course of eight to ten, according to the degree of damage done, or, if ignored, they may end in irreparable mental alienation or death.

The therapeutic deductions are to restore the too suddenly abandoned drug, and then withdraw it gradually, supplanting it by the most sustaining nutrition, medicinal substitutes and sleep.

The chief practical point from this view is that it is not the presence of the poison that makes the mischief, though the poison has made it, but its absence, which reveals the damage. The poison is, in fact, in a measure, like the hair of the dog that heals the bite. Like relenting violence, if allowed to moderately handle its victims, it helps to lift up and heal the wound it has made, and soothe away the pain it has caused.

We have a damaged nervous system to repair, and we should only withdraw the opium as we reconstruct the damage it has made, because while it wounds, it also sustains. It is not enough to remove the foe, but we should repair the effects of his invasion as well; and while we should place the enemy in retreat, and drive him out, we should sustain the friend we fight for at the same time, and strengthen his powers of resistance.

I know, from ample observation in cases where it has been tried by others, and the patients, with minds deranged in consequence, have fallen into my hands, that Obersteiner's method of sudden weaning is cruel, dangerous and unscientific; for in the sequences of chronic opium poisoning, we have diseased conditions in which the central nervous system has been so crippled that it needs the sustaining crutch of opium; and opium is not

the only article of the *materia medica* that has the power to both pull down and prop up the system.

Such reasoning, as says the cause must be taken absolutely and at once away, is sophistical and fallacious, because of the fact here maintained, that a pathological condition abides after the agent that caused it has left the system, and the agent that made the mischief has, in lessened doses, most benignant compensatory and sustaining powers.

Dermal Pigment Changes in the Insane.

By JAS. G. KIERNAN, M. D., Chicago, Ill.,

Late Medical Superintendent Cook County Hospital for the Insane; formerly of the New York City Asylum for the Insane; Member of the New York Society of Medical Jurisprudence, and of the Chicago Medical Society, Etc.

THE opinion expressed by Dr. Ohmann-Dumesnil,* as to nervous influence in the production of vitiligo, is confirmed by certain cases coming under my observation in the Ward's Island and Cook County Insane Hospitals.

In 1878† I reported, in another connection, the following cases:

CASE I.—G. H.—; neurotic taint denied; had been healthy until the age of 16, when, in consequence of diarrhea, he became much run down. Two weeks subsequent to his recovery from the diarrhea, a large carbuncle made its appearance over the third cervical vertebra on the left side, which, after remaining a year, left a permanent deep scar. He was addicted to masturbation. Three weeks after his recovery from the abscess, while masturbating, felt, as it were, a crack like a pistol shot, almost immediately followed by left unilateral choreoid twitching. Very soon after this his skin and hair changed in color on that side; sharply demarcated brown to blackest spots made their appearance on the left side of his face and left arm; his hair became gray, in patches, on the left side; he had mixed delusions of suspicion and grandeur, and a dignified manner. On admission, December, 1874, this patient, then 18 years old, complained of a curious sensation coming from his neck at the site of the scar; then of a desire to laugh; then of a sudden destructiveness. He was morbidly anxious about the changes in his hair and skin. About twice every twenty-

* ALIENIST AND NEUROLOGIST, April, 1886.

† *Journal of Nervous and Mental Disease*, 1878.

four hours he had periods of great destructiveness; sometimes he would have, at meal-times, an attack of what closely resembled petit-mal. At a later period there was slight left facial hemiatrophy, slight bilateral exophthalmos and thyroid enlargement. He was subject to the attacks just mentioned, and also to irregular alternations of emotional exaltation and depression. It is obvious that the superior cervical sympathetic ganglion was involved by the abscess, and that slight symptoms of Graves' disease and of facial hemiatrophy existed. The pistol-shot-like sensation has been observed before in connection with disorders of the sympathetic. It is obvious that the hebephrenia originally existing in this case was complicated by epiphenomena of epileps and unstable emotional disturbance. In certain features this case resembles those reported by Williams* and Leonard.† In others it resembles the case reported by Bannister,‡ which, however, was complicated by a traumatic element. In certain particular physical features the case is imperfect, but as an excuse for these imperfections, I must plead the bad moral effect on the patient of medical scrutiny. Examinations had to be made without his knowledge.

CASE II.—D. N——; age 56, negro, intemperate, was attacked three years before admission to the Ward's Island Insane Hospital, with left hemiopia, attended by slight amnesia; he did not know the names of the tools of his trade, but if told them could remember them for some time. His intelligence was slightly impaired, but he continued to perform his duties until two years before admission, when he had a "fit," followed by left hemiplegia and amnesic aphasia. From both he gradually recovered to some extent. Six months before admission he had regained the power of uttering his name and writing it partially; the greater part being composed of figures corresponding with the position of the letters in the alphabet. About this time his skin became white in

* *Lancet*, Vol. II., 1877, p. 724.

† *Lancet*, Vol. II., 1877, p. 798.

‡ *Journal of Nervous and Mental Disease*, July 1879.

patches, his hair greyish in spots on the left side, involving the whole of that side. Six months after admission he presented decided and active symptoms of paretic dementia, the aphasia having, meanwhile, disappeared.

CASE III.—T. G—— had been in the habit of being wet-cupped over the fifth cervical vertebra, on the left side. Three years before admission he stopped the practice. Severe cerebral hyperæmia followed, accompanied by flushing of the left side of the face, enlargement of the left side of the thyroid body and temporary aphasia. In about a year these symptoms disappeared, but were succeeded by marked symptoms of paretic dementia and localized pigment atrophies in the hair and skin, together with slight facial hemiatrophy. At the time of admission unilateral phenomena, resembling those of Graves' disease, existed.

In a case of paretic dementia, secondary to lead poisoning, the pigment atrophy was limited to the face.

In the Ward's Island Hospital localized pigment changes of the types described were found in ten paretic dementes, ten of cyclothymia* cases; ten hebephreniacs, eight paranoiacs, four epileptics, and two terminal dementes.

In many of these cases certain vaso-motor changes were evidently the basis of certain abnormal sensations which preceded, at the place of these sensations, the trophic pigment changes.

One case deserves citation in this connection: J. B. S——; age, 34; Canadian; father died of apoplexy; mother 52 years old when he was born. Had been peculiar from birth, and subject for four years before admission to brief attacks of mental excitement. Two years before admission became demonstrably insane. He complained, during a period of excitement, of being persecuted by means of electricity, which affected his general health by the subjective mental impression. On the disappearance of the excitement, local changes in pigmentation occurred at the point at which the abnormal sensations were felt. In three paretic dementes, four hebephreniacs, two paranoiacs, and

* KAHLBAUM'S synonym for *folie circulaire*.

two epileptics, at the Cook County Insane Hospital, I have observed the like changes.

Evidence in the same direction is to be derived from researches of Rheinhardt* on change of hair color in the insane, and the more recent researches of Pohl Pincus,† who, in a monograph entitled, "Polarized Light as a Means of Recognizing Irritable Conditions of the Nerves of the Scalp," has announced that by an examination of hair roots by polarized light, peculiar changes may be observed whenever the patient suffers from physical irritation or mental excitement. This statement is the result of investigations for twenty-five years. The hair bulbs are divided into three groups, as follows: Group A: In healthy conditions of the body and mind, the hairs that fall out daily, examined microscopically by polarized light, will show the enlarged bulbous end of the root, a white contour, and a yellowish or brownish-red center. Group B: In all irritable conditions of any organ; also in emotional disturbances of moderate grade, without any apparent bodily disease, the bulbous end of the hair root increases in length and breadth (in proportion to the irritation, the central part appears under polarized light of a violet, blue, or bluish-green color, separated from the white contour by bands of yellow and red. Group C: In higher grades of bodily disease or mental disturbance, the bulb becomes still larger, and the bluish center changes to green, yellow or orange. A few hairs of the B and C types are found in normal conditions, especially in those more advanced in life. Dr. Pincus gives thirty-one cases, showing the effects of painful disease, and more especially of depressing emotions, upon the hair root. His conclusion from these researches is that bodily disease or mental excitement causes circulatory disturbances, and in consequence, a change in the normal nutrition and pigmentation of the hair. The subject is certainly one which deserves attention from alienists.

* ALIENIST AND NEUROLOGIST, 1884.

† *Lancet*, May, 1886.

Clinical and Pathological Records from McLean Asylum for the Insane.

*FROM THE REPORT OF DR. EDWARD COWLES, MEDICAL
SUPERINTENDENT, AND W. W. GANNETT, M. D.,
PATHOLOGIST.*

CASE I.—General Paralysis. Three-and-a-half years' duration. Male, aged forty. Frequent convulsions, always beginning in the left hand and arm, sometimes limited to that limb. Death from embolism of the pulmonary artery.

Diagnosis: Brachycephalic skull; œdema of pia; chronic endymitis; moderate atrophy of brain; chronic circumscribed-meningo-encephalitis.

Autopsy forty-two hours after death. Body well developed, well nourished, subcutaneous fat tissue everywhere abundant. Right thigh and leg slightly larger than left, not pitting on pressure. Rigor mortis marked. Ratio of head to body and cranium to face apparently normal. Skull markedly brachycephalic, symmetrical. Calvaria of normal thickness; its removal was attended with the escape of considerable clear fluid, ratio of diploë to tables, normal. Dura mater quite firmly adherent to calvaria in central line, everywhere thin and translucent; nothing unusual observed on external or internal surface; superior longitudinal sinus contained a small amount of fluid blood; other sinuses showed nothing abnormal.

There was a considerable quantity of clear serum in the meshes of the pia, uniformly distributed over the convexities; moderate thickening and opacity of the pia, along the course of the vessels. Vessels at base of brain and in the fissure of Sylvius showed nothing abnormal. Each lateral ventricle contained about 10 cc. of fluid; ependyma

slightly thickened and granular; floor of the fourth ventricle granular, roughened. Brain substance rather flaccid, but tough; sulci in anterior portion wider than usual. On section, ratio of gray matter of cortex to white matter somewhat diminished; this most marked in the anterior frontal region; gray matter pale; section of white matter showed moderate moist surface; puncta cruenta well marked, though rather small. Section of corpora striata and optic thalami showed a diffused, pale snuff-colored appearance. Section of medulla, pons and cerebellum showed nothing abnormal. The pia was adherent, tearing away brain substance on its removal, over the lower portions of the ascending frontal and parietal convolutions on the right side.

There was chronic adhesive pleurisy of the left, and marked œdema of both lungs. In the right primary pulmonary artery was a firm, homogeneous, pale red thrombus, one end of which extended into one secondary pulmonary artery, the other end into the other branch, forming a rider, completely obliterating the lumen of the vessel; in one portion adherent to the inner wall. In the right iliac and femoral veins, from a point about 6 cm. below the inferior vena cava to the popliteal region, was a thrombus, tolerably firm, homogeneous, dark blue, for the most part adherent to the wall, and in many places obliterating the lumen; the end toward the vena cava was irregular. Other organs showed nothing remarkable.

Microscopic examination of brain, fresh. Marked increase in the neuroglia in the first layer of the cortex, especially in the lower portions of the gyrus parietalis superior and gyrus centralis of the right side; moderate degree of pigmentation of the ganglion cells of the gray matter of the cortex; moderate collection of ruby-red granular pigment in the adventitial lymph-sheaths; collections of similar pigment granules lying free in the gray cortex, white matter, and in the basal ganglia; pigmentation of the ganglion cells of the latter to a slight degree. No changes were observed in vessels of the pia beyond

the pigment adventitial sheaths of smaller vessels dipping into the cortex.

Examination after hardening. The pia showed a slight increase in the number of dense connective tissue fibers, with a moderate degree of infiltration of the same with round cells.

The first layer of the cortex was composed wholly of a series of the finest lines, crossing each other in every direction and giving the appearance of a very fine mesh; in this were to be seen a few round (lymphoid) cells and a few spider cells; the ganglion cells of the third layer pigmented; nothing beyond this. The blood-vessels of the cortex and adjacent white matter empty and collapsed for the most part; a few contained an occasional red blood corpuscle. No changes in the vessel walls observed.

The ependyma of the lateral ventricles was four or five times as thick as normal, showing the same finely fibrous appearance described in connection with the cortex, only that the fibers were crowded more closely together,—a moderate number of spider cells in the mesh.

In two places, a collection of red blood corpuscles in the perivascular spaces was observed; but neither on these nor on other vessels were there any evidences of periarteritis or miliary aneurism formation.

CASE II.—General Paralysis. Three and half years' duration. Male, aged forty-seven.

Diagnosis: Œdema of pia; chronic leptomeningitis; diffuse meningo-encephalitis; moderate atrophy of brain, chronic diffuse ependymitis; internal hydrocephalus; *état criblé*, enlarged perivascular spaces of brain.

Autopsy thirty hours after death. Antero-posterior diameter of the skull 18 cm.; transverse, 14.8 cm. Calvaria thinned, diploë diminished; along the longitudinal sinus in two areas, 15 cm. in diameter, the calvaria was about 1 mm. thick. Dura presented unusual thickness along the median line; the superior longitudinal sinus contained partly coagulated blood; dark fluid blood in the lateral sinuses. In the meshes of the pia was a

considerable collection of the clear fluid, diffusely spread. The pia was thickened, opaque in patches, most marked along the course of the vessels. Sulci somewhat wider than usual. During the removal of the brain there was an escape of considerable fluid. Weight of brain, 1,420 grms. The lateral ventricles contained about 30 cc. of clear fluid; cavities dilated about three times the normal size; ependyma everywhere thickened and granular; choroid plexus pale, adherent to the floor of the ventricle, and showed at the extremities numerous small, thin-walled cysts, with clear contents; floor of the fourth ventricle showed a granular appearance. Striæ acusticæ indistinct. Brain substance softer than usual; puncta cruenta small; openings of vessels enlarged; gray contex throughout more opaque than usual; here and there, thinner than normal. Basal ganglia on section showed a diffuse, pale yellow tint; somewhat more opaque than normal. Pia everywhere adherent, tearing away brain substance, on its removal. Other organs not remarkable.

Microscopic examination of brain, fresh. No corpora amylacea observed in the first layer, nor were the evidences of increased formation of interstitial tissue apparent. Moderate degree of pigmentation of ganglion cells of the third layer. Many of them contained glistening, refracting globular bodies, all of about the same size. The adventitial sheaths of the vessels were in many places separated from the media, in some places containing apparently nothing; in other places, free, red pigment and degenerated red blood corpuscles, enclosed in cells. Neither granular corpuscles nor fatty degenerated vessels observed. Basal ganglia: The ganglion cells contained pigment and glistening drops similar to those described in connection with the ganglion cells of the cortex.

Examination after hardening. Pia showed nothing abnormal. Cortex: In the first layer was to be seen here and there, in circumscribed patches, the fine fibrous network, as already described, with lymphoid cells, somewhat increased in size, lying in it, and also an occasional

spider cell; in some parts of the first layer, only the neuroglia network was present, without any nuclei or spider cells; elsewhere, the first layer not remarkable. Vessels of cortex were moderately distended with blood corpuscles. In many places the adventitial sheath was separated from the media, the space being filled with round cells and yellowish-brown granular pigment. Ganglion cell of third layer somewhat small; some showed nucleus and nucleolus indistinctly stained (rest of specimen well stained), with glandular matter (protoplasm of cell) about them not stained, the cell boundaries being very irregular and broken.

Cord: In one portion of the cervical region, the columns of Goll and Burdach were separated by a broad band of connective tissue, this being the thickened connective tissue and neuroglia of the part; sections from other portions of the cervical cord showed no such appearances; the ganglion cells in general contained pigment. Dorsal Cord: Pigmentation of ganglion cells; nothing beyond this observed. Lumbar cord showed nothing abnormal; pigmentation of ganglion cells.

CASE III.—Acute Delirious Mania. Duration, one week. Male, aged fifty-one.

Diagnosis: Moderate hyperostosis of the skull; slight atrophy of the brain; œdema of pia.

Autopsy twenty-one hours after death. Body large, well developed and well nourished. Ratio of head to body and cranium to face apparently normal. Antero-posterior diameter of the skull, 18 cm.; transverse diameter, 14 cm. Nothing unusual observed about the cranium. Calvaria measured in the thickest portions 11 mm.; in the thinnest, 4 mm.; nothing unusual about its external or internal surface. Dura everywhere translucent; superior longitudinal sinus contained a small amount of fluid blood; its lumen was nearly half filled by Pacchionian granulations; the lateral sinuses also contained a small amount of fluid blood; nothing unusual was observed about the inner surface of the dura mater. The pia was everywhere thin and

delicate, the meshes being filled with a clear serous fluid. The sulci were somewhat wider than usual. Weight of brain, 1,504 grms. Nothing unusual was observed about the vessels at the base or in the fissure of Sylvius. Each of the lateral ventricles contained a few centimetres of clear fluid; ependyma everywhere smooth and shining; velum interpositum and choroid plexuses were of a pale red color. Brain substance in general tolerably firm: on section, cut surface dry, puncta cruenta few and small; gray cortex apparently the usual degree of thickness, and rather pale. The ganglia at the base of the brain, the pons, medulla and cerebellum showed nothing remarkable. The pia everywhere readily separated from the brain substance; its vessels contained only a moderate amount of blood.

In the right hypochondriac region was an abscess, containing about 100 cc. of a dirty puriform fluid, bounded in front by the junction of the ascending and transverse colon, posteriorly by the duodenum, and laterally and posteriorly by the gall bladder. No communication could be made out between the cavity of the abscess and the duodenum, colon, gall bladder, or the free peritoneal cavity. There was a slight degree of cloudy swelling of the kidneys; the mucous membrane of the pelvis of the right kidney was injected, velvety, and showed numerous small ecchymoses; the mucous membrane of both ureters was somewhat thickened, and covered with an abundant layer of creamy pus; a moderate cystitis in the neighborhood of the trigonum. There was emphysema of both lungs. Other organs not remarkable.

Microscopic examination of brain, fresh. A moderate degree of pigmentation of the ganglion cells; moderate collection of fat drops in the adventitial lymph spaces. Beyond this, nothing abnormal was detected anywhere in the brain. Brain not hardened.

CASE IV.—Acute Mania. One week's duration. Fe male, aged thirty-five.

Diagnosis: Injection of the vessels of the brain and cord to a marked degree.

Autopsy seventy-two hours after death. Body small, fairly well developed, fairly well nourished. Superficial parts of the body of a pale yellow tint. The ratio of head to body and cranium to face, apparently normal. Skull symmetrical. Nothing unusual observed about the pericranium. Calvaria measured, at its thinnest portion, 2 mm.; at its thickest, 6 mm.; ratio of diploë to tables, as usual; sutures open; on the inner surface, numerous depressions along the middle line corresponded to the situation of Pacchionian granulations; calvaria firmly adherent to the dura along the course of the longitudinal sinus. Dura everywhere thin and translucent; all the sinuses distended with partly coagulated blood. Pia everywhere thin and delicate. Sulci somewhat larger and wider than usual, the meshes containing a small amount of clear, thin fluid. Vessels of the pia throughout, from the largest to the smallest to be seen with the naked eye, distended with blood, moderate escape of clear fluid from the cavity of the skull during removal of brain. Weight of brain, 1,440 grms. Vessels of the base and in the fissure of Sylvius were distended with fluid blood, with here and there a small coagulum; walls thin and delicate; the lumina everywhere perfect. Each lateral ventricle contained about 10 cc. of clear fluid; cavities of the usual size; ependyma everywhere smooth and shining; choroid plexuses of a dark reddish-blue color, and the vessels distended with blood; the velum interpositum also very dark; nothing unusual observed about the third and fourth ventricles. Brain slightly soft; gray matter of the convolutions 2 to 3 mm. thick and of a dark purplish color, showing, on close examination, numerous small red points; in many places, a pale narrow line, corresponding to the third layer, was to be made out; white matter of the usual color; puncta cruenta somewhat more abundant than usual; gray matter of corpus striatum and optic thalamus darker than usual; the larger vessels contained small clots, small red points representing the smaller vessels; the same appearance of the vessels of the pons, medulla and cerebellum. Pia

everywhere readily separable from the brain substance; considerable fluid in the space between the dura and pia of the cord; vessels of the pia distended with blood. On section, cord in general quite firm. The gray matter was of darker color than usual, and showed, in many places, the smaller vessels well injected.

There was acute fibrinous pneumonia of the upper and lower lobes of the right lung. Other organs not remarkable.

Microscopic examination of brain, fresh. Gray cortex: The ganglion cells showed only a few granules of pigment in each cell; these cells of good size and form. The vessels, large and small, were distended with blood corpuscles, so that the section looked like a close mesh of red lines made up of the capillaries and smaller arteries; no evidence of diapedesis observed in the fresh specimens. Basal ganglia showed the same appearances after hardening. Various portions of the cortex and the spinal cord throughout showed a very marked injection of the vessels, but nowhere any signs of diapedesis or other changes in the ganglion cells, nerve fibers, or neuroglia.

CASE V.—Melancholia with Delusions. Two years and three months' duration. Male, aged fifty-six.

Diagnosis: Calcified plate in the dura; very slight œdema of pia; absence of right vertebral artery; chronic circumscribed leptomeningitis; chronic circumscribed interstitial myelitis.

Autopsy thirty-six hours after death. Body large, well developed, somewhat emaciated. Rigor mortis marked. Ratio of head to body and of cranium to face appeared normal. Nothing unusual about the pericranium or external surface of calvaria. Skull measured antero-posteriorly 192 mm., transversely 147 mm. Calvaria measured on an average 7 mm. in thickness; relation of diploë to tables normal; calvaria readily separable from dura. Dura translucent everywhere; sinuses contained a small amount of dark fluid blood; in the tentorium, a

calcified plate about 6 mm. in diameter was found; inner surface of dura everywhere smooth, shining, and pale. In the meshes of the pia, between the sulci, was a very small amount of clear, thin fluid; the pia was thin, delicate and translucent, and the vessels contained a moderate amount of blood. The brain filled the cavity of the skull, and weighed 1,552 grms. The vessels at the base and in the fissure of Sylvius showed thin delicate walls; the right vertebral artery was apparently absent, the left being proportionately enlarged. The lateral ventricles contained each about 5 cc. of clear fluid; the ependyma was everywhere smooth and shining; velum interpositum and choroid plexuses were of the usual color, and the latter were in one point on either side of the floor of the ventricle; fourth ventricle showed no unusual appearances. The brain substance, in general, was firm; the gray cortex measured 2 to 3 mm. in diameter, and was of good color, with here and there an opaque yellow line at about its middle; the white matter was firm and slightly moist, and the puncta cruenta marked. Section of the basal ganglia, the pons, medulla, and cerebellum, showed no appearance worthy of note. The pia was everywhere readily separable from the brain substance; in the neighborhood of the olfactorii, it was slightly thickened and opaque. There was a slight escape of clear fluid from the cavity of the skull during removal of the brain. The peridural fat tissue of the cord was abundant; the dura, pia, and cord itself showed in gross no unusual appearances.

There was pigmentation of the muscular substance of the heart; chronic adhesive pleurisy; putrid bronchitis with acute broncho-pneumonia; chronic interstitia nephritis of a moderate degree, and cicatrices of the left kidney from embolism; brown atrophy of the liver.

Microscopic examination of brain, fresh. The ganglion cells of the gray cortex contained a small amount of yellow granular pigment. The vessels contained but little blood; here and there along the course of the capillaries

were to be seen circumscribed collections of fatty drops, at regular intervals surrounding a nucleus [fatty degeneration of capillaries]. No separation of, or other change observed in, the adventitia of any of the vessels. Here and there a granule or two of pigment lying free. White matter showed nothing unusual. Basal ganglia: The ganglion cells contained a few granules of pigment. Vessels contained about the normal amount of blood. Pia: Pigment in the sheaths of the vessels. Cortex: In certain parts, in the very outermost layer of the cortex, a slight degree of the finely fibrous appearance was to be seen, the deeper portions showing nothing unusual; nowhere were any spider cells observed; the ganglion cells of the third layer pigmented, bodies of cells of good size and form; the processes remarkably distinct. Cord, upper cervical: The same finely fibrous appearance described in detail in connection with the cortex of Case I. was seen in the right lateral region [cerebellar lateral column, *Kleinhirnseitenstrangbahn*]. A few spider cells were observed, but these were rather indistinct. Cervical enlargement: The same appearances as in the upper cervical, and limited to the same region [cerebellar column, right side]. Dorsal cord: In all segments, the medium and larger sized vessels showed a marked thickening of the walls, these presenting a clear, homogeneous, glistening appearance [hyaline degeneration, *Recklinghausen*]. In the left anterior cornu, the ganglion cells were diminished in number, and in the right anterior cornu had almost wholly disappeared, the cornu presenting but few nerve fibers, but many interlacing fine neuroglia fibers; the cornu showing an open, coarse meshwork. The lumbar cord was, in all parts examined, remarkably well preserved; the ganglion cells were present in sufficient numbers, were large, their outlines sharply marked, nucleoli distinct. Some of the cells contained a moderate amount of pigment. Nowhere was any hyaline degeneration of the vessels observed.

CASE VI.—General paralysis. Duration, about six

years. Male, aged forty-nine. Convulsions, involving principally the left side.

Diagnosis: Pachymeningitis interna chronica, hæmorrhagica, serosa et pigmentosa; chronic leptomeningitis; chronic ependymitis; internal hydrocephalus; atrophy and œdema of brain; injection of vessels of corpus striatum; pigmentation of the internal capsules, chronic meningo-encephalitis; chronic interstitial myelitis.

Autopsy twenty-four hours after death. Body medium sized, well developed, somewhat emaciated. Rigor mortis present. Relation of head to body and of cranium to face apparently normal. Nothing unusual observed about the pericranium or external surface of the calvaria. Skull measured antero-posteriorly 185 mm., and transversely 136 mm. Calvaria varied in thickness from 2 to 5 mm.; relation of tables to diploë normal; calvaria readily separated from the dura. Dura seen *in situ* rather opaque and of a dark bluish color; convolutions not seen; over the inner surface of the dura of the convexities and posterior fossa were a series of layers of membranes, which were thin, delicate and translucent, the deeper ones firmly adherent to the dura, the others separated in places by layers of pigment; also two layers separated over a considerable area by a partly decolorized blood clot about 4 mm. in thickness; on the borders of these masses, the inner surfaces showed a snuff colored appearance; from these points, a delicate adherent false membrane could be picked; the sinuses contained a small amount of partly coagulated blood. The brain did not fill the cavity of the skull, and weighed 1,395 grms. The meshes of the pia contained no fluid; the pia was thickened, opaque and cloudy throughout all the convexities and base, most marked along the course of the vessels. The vessels of the base and fissure of Sylvius showed everywhere thin walls, and contained a small amount of partly coagulated blood. Lateral ventricles distended to about twice their usual size; the ependyma everywhere thickened, granular, and warty; velum inter-

positum and choroid plexuses of about the usual color; the latter showed the presence of a few cysts about the size of dried split peas, containing a clear liquid; the plexuses were for the most part adherent to the floor of the ventricles; only that in the fourth the warty appearance was more pronounced.

The brain, as a whole, showed a marked diminution of the transverse diameter of the frontal regions; the brain substance in general was somewhat flaccid, and at the same time tougher and more leathery than usual. On section, the gray cortex was considerably thinned over the apices of the convolutions of the frontal regions, particularly of the right side, measuring only 1.5 mm. in thickness, pale in color, showing in many places narrow yellow opaque streaks, corresponding to the third layer of the pyramidal ganglion cells. The surface of the white substance showed a dirty yellowish-white tint; the surface somewhat moist and the puncta cruenta well marked. The section of the basal ganglia showed the corpus striatum to be of a darker purplish color than usual, and on closer inspection numerous red streaks and specks were to be seen; the internal capsule of a yellowish-white tint; otherwise, the basal ganglia, together with the medulla, pons and cerebellum, showed no appearance worthy of note. The pia was everywhere more adherent to the brain substance than usual, especially marked on the convolutions on either side of the fissure of Rolando on the right side, in which region the adhesions were so marked and extreme that considerable portions of the brain substance were removed with the pia; the same appearance, to a less degree, was observed in the corresponding region on the left side. The peridural fat of the cord was very slight in amount; the dura not remarkable; in the subdural space was a moderate collection of clear fluid; vessels of the pia contained but little blood; the cord in general showed no appearances in gross that were worthy of special notice.

The condition of the other organs was as follows:

Chronic circumscribed pericarditis, pigmentation of the heart, chronic adhesive pleurisy, broncho-pneumonia from inhalation, putrid bronchitis, atrophy of the spleen, moderate interstitial nephritis with cyst formation; slight pyelitis, hypertrophy of bladder, brown atrophy of liver, biliary calculi and chronic endaortitis.

Microscopic examination of the brain, fresh. Ganglion cells of cortex contained considerable granular pigment; the adventitial lymph sheaths considerably dilated and filled with granular pigment, also free pigment; the vessels contained a moderate amount of blood.

After hardening. The inner surface of the dura was covered with a series of layers, varying in structure; dura itself, in the innermost portions, showed an increased development of blood-vessels; next, a layer, made up of connective tissue fibers, with numerous spindle cells and a smaller number of round cells, also a small amount of granular pigment; the next layer contained scarcely any connective tissue fibers, but was made up of large, well-marked spindle cells, lying parallel to one another; among these cells were a large amount of yellow granular pigment and some degenerated red blood corpuscles; next, a layer of still younger connective tissue, there being numerous round and fewer spindle cells, with a nearly translucent intercellular substance; here and there in this layer were large collections of red blood corpuscles [hemorrhage]; lastly, a layer, made up of delicate, thin-walled, large-lumened blood-vessels, filled with blood corpuscles, lying in a delicate connective tissue stroma (various stages of chronic internal pachymeningitis.) Considerable increase in the connective tissue fibers of the pia, with a moderate degree of infiltration with round cells. The outer two-thirds of the first layer of the cortex showed the finely fibrous appearance previously described; the lines [neuroglia fibers] being fine, the mesh formed by them rather coarse; a moderate number of round and oval nuclei; the spider cells everywhere many, in places numerous. In many places the large pyramidal ganglion cells of the

third layer had entirely disappeared, there being patches which showed the finely fibrous mesh of new-formed neuroglia, with extensive infiltration with round cells; in those portions of the third layer where the cells [ganglion] were preserved, they showed a marked degree of pigmentation. The adventitial sheaths of the vessel were extensively infiltrated with round cells, and contained, in addition, considerable pigment; where a medium or large-sized vessel had been cut transversely the infiltration of the wall with round cells and the increase in the neuroglia fibers already mentioned were very apparent for a distance from the vessel of four or five times its diameter; the vessels contained a medium amount of blood. The changes above described were to be seen in the cortex of various portions of the brain. The white matter showed extensive infiltration of the adventitial lymph sheath; otherwise, it was not unusual. Cord, upper cervical: The right anterior columns showed an extension inward from the pia of the finely fibrous, new-formed neuroglia, which took a deep stain; in these areas there was an almost complete disappearance of the nerve fibers. In the left posterior horn of one of the sections of the cervical enlargement was an oblong patch, made up wholly of round cells, closely packed together; the vessels in the gray cornua throughout the cervical enlargement showed extensive round cell infiltration; the pia showed a slight degree of the same form of infiltration. Dorsal cord: Marked thickening of pia, due to round cell infiltration; ganglion cells throughout showed pigmentation, but no alteration in form or size; the processes were well preserved. Beginning with the upper cervical, and extending to the lowest lumbar region, was a progressively increasing thickness of the pia, due to round cell infiltration.

CASE VII.—General Paralysis. Two and a half years' duration. Death after a series of convulsions extending over a period of three days. Male, aged thirty-nine.

Diagnosis: Chronic diffuse leptomeningitis; moderate œdema of pia; injection of vessels of brain; hemorrhages

of cerebellum; circumscribed meningo-encephalitis; chronic ependymitis; leptomeningitis of cord, with formation of lime plates.

Autopsy twenty-two hours after death. Body of medium size. Ratio of head and body and cranium to face, normal; antero-posterior diameter, 179 mm.; transverse, 147 mm. Nothing unusual observed about the pericranium; sutures open. Calvaria varied in thickness from seven to ten mm.; ratio of diploë to tables normal; inner surface not unusual; readily separable. Dura everywhere translucent; sinuses contained a moderate amount of partly coagulated blood. Pia thickened and opaque in patches; meshes contained a moderate amount of clear fluid; vessels distended with blood. Brain nearly filled the cavity of the skull; weight, 1,603 grms.; a moderate amount of clear fluid escaped from the cavity of the skull, on its removal. Vessels of the base and fissure of Sylvius contained a considerable quantity of blood; walls thin and delicate. Each lateral ventricle contained about 10 cc. of clear fluid; ependyma somewhat granular and warty throughout; ependyma of third and fourth ventricles showed similar appearances, more marked in the latter; velum and choroid plexuses of dark purple color.

Brain substance in general very firm and dry; cortex of about the usual thickness; white matter very dry; puncta cruenta numerous and marked. The ganglia at the base showed, on section, a pale purplish tint, and on close inspection, red points and streaks; pons and medulla not remarkable. In the right half of the cerebellum there were extravasations of blood into the outer layer of the cortex, covering the small areas. Over the anterior and posterior central convolutions of the right half, the pia was adherent, tearing away brain substance on its removal; in corresponding portion of the left side, the pia was slightly more adherent than usual; in other situations easily removed. Moderate collection of clear fluid in the subdural space in the cord; vessels of the pia

contained a large amount of blood; on section, the cord showed numerous red points and streaks.

There was chronic adhesive pleurisy on the left side; and acute broncho-pneumonia of the right lung, involving part of the upper and lower and the whole of middle lobes. Other organs not remarkable.

The brain was not examined fresh, in this case, but was put at once into Müller's fluid.

Examination after hardening. Cortex: the first layer was converted throughout into a meshwork of finely fibrous lines; in this mesh were oval and round nuclei, also spider-cells; the latter, though well marked, were small; ganglion cells of the third layer were well preserved, but deeply pigmented. The vessels throughout the cortex contained rather more blood than usual, except as below. There was marked round-cell infiltration of the adventitial sheaths; cross section of some of the large vessels showing almost complete obliteration of the lumen, the adventitial space being widely distended with leucocytes [periarteritis,] but no distinct miliary aneurisms were discovered. Cerebellum: the meshes of the pia contained, in patches, free red blood corpuscles; these corpuscles were also to be seen extending along the sheaths of the vessels into the granular and nuclear layers. There were also circumscribed, nearly globular hemorrhages in the granular layer, but for the most part connecting with the pia by narrow rows of blood corpuscles. No miliary aneurisms were discovered.

Cord, cervical region: round-cell infiltration of the pia to a moderate degree, with a slight increase in the number of connective-tissue fibers. The posterior half of the left column of Goll took a deep red stain (carmine), showing abundant neuroglia fibers, nuclei and a few spider cells; the nerve-fibers in this region had almost completely disappeared; ganglion cells of the gray matter pigmented, of good size and form; vessels showed round-cell infiltration of the walls; in many places, the adventitia was widely separated from the media and filled

with round cells. Other portions of the cervical enlargement showed more widely spread interstitial changes in the left column of Goll, but nowhere as far advanced as in the portion previously described. Other portions of the cervical enlargement showed interstitial changes in both posterior halves along the posterior fissure; the pia here, three or four times as thick as usual, intimately adherent to the columns on either side, the interstitial changes extending into the columns. In the meshes of the pia projected into the anterior median fissure was considerable nearly homogeneous material, evidently fluid when fresh; marked round-cell infiltration of the pia in this part. In some portions were collections of round cells in oval or circular spaces, with little or no definite wall [suggesting lymphatics]. Dorsal cord showed nothing unusual. Lumbar cord: The posterior, inner part of both columns of Goll, showed appearances similar to those described in connection with the cervical region.

CASE VIII.—General Paralysis. Duration, about a year and three months. Male, aged forty-three. Death after a series of convulsions.

Diagnosis: Moderate degree of chronic ependymitis; meningo-encephalitis.

Autopsy thirty-five and a half hours after death. Body above medium size, well developed, and well nourished. Ratio of head to body and of cranium to face, normal; antero-posterior diameter, 179 mm.; transverse, 148 mm. Calvaria of usual thickness, readily separable from dura. Dura translucent; neither its external nor internal surfaces presented anything worthy of special note; sinuses contained a moderate amount of partially coagulated blood. No fluid in meshes of pia, which was thin and delicate; vessels contained a moderate amount of blood. Brain filled cavity of skull, and weighed 1,600 grms.; no escape of fluid from cavity of skull during removal of brain, and fissure of Sylvius contained very little blood; walls thin and delicate, lumina free. Lateral ventricles contained no appreciable amount of fluid; ependyma

smooth and shining; choroid plexuses pale; ependyma slightly warty in floor of fourth ventricle, just anterior to calamus scriptorius.

Brain substance in general quite soft; cortex usual thickness in most parts, usual color; in some a slight purplish tint, showing, on careful examination, numerous specks and streaks of dark red color; white matter showed dry cut surface.; puncta cruenta, of usual size. Basal ganglia showed, on section, both corpora striata quite pale, both nuclei centiformes of a purplish tint, but showed, on more careful examination, numerous purplish streaks and points; pons and medulla showed no appearance worthy of note. Pia throughout slightly adherent; in some places tearing away brain substance on its removal, in others leaving only a granular surface. Neither cord nor its membranes showed anything remarkable.

Examination of other organs showed chronic adhesive pleurisy, recent fibrinous pleurisy, acute broncho-pneumonia, gangrene of lung, putrid bronchitis, fatty infiltration of liver.

Microscopic examination after hardening: The outer half of the first layer of the cortex showed the finely fibrous neuroglia meshwork described in connection with the earlier cases, with numerous spider cells. The ganglion cells of the third layer were small, irregular in outline, markedly pigmented. Of especial interest in the microscopic examination of this brain was the presence throughout the white matter of what were, apparently, very numerous spider cells; they were very large, with clear contents, most having a nucleus the size of a leucocyte, situated laterally; the processes were numerous and well marked. Sections were treated with various staining fluids, especially carmine and hæmatoxylin, also double staining with carmine and hæmatoxylin, all showing same appearances. The appearance was a very striking one, that as of large spider cells scattered at regular intervals through the white matter. The writer never saw this appearance before in the white matter, and does not

remember to have seen any mention of it in the literature. Whether these were actual neuroglia cells or whether they represent dilated lymphatics must remain *sub judice*. Except for these spider cells, the white matter showed nothing unusual [beyond, also, the vessel changes to be presently described]. The vessels of the cortex and of the white matter were fairly well injected; the adventitia extensively infiltrated with round cells, and here and there with pigment.

The examination of the various regions of the cord failed to show any appearance varying from the normal; the dorsal and lumbar regions were not very well hardened, and the sections were not perfect, the pia, with portions of cord, separating in many places; the examination of such detached bits of pia and cord showed, however, nothing unusual.

PROCEEDINGS

OF THE

NEW ENGLAND PSYCHOLOGICAL SOCIETY.

The New England Psychological Society met at Hotel Brunswick, Tuesday, April 13, at 3:30 o'clock. Vice-President Dr. J. P. Bancroft in the chair.

There were present: Drs. J. P. Bancroft, C. T. Bancroft, Stearns, G. W. Russell, Ira Russell, Goldsmith, Channing, Cowles, Rowe, Jelly, Quimby, Baker, Bennet and Fisher.

Dr. Fisher reported for the committee on Time and Place of Meeting, that Dr. Draper favored two meetings annually, in April and October, at Hotel Brunswick. Dr. Brown, of Barre, was in favor of three meetings a year, as at present, and at the same place. Dr. Fisher agreed with Dr. Brown.

Dr. Goldsmith remarked that he thought two meetings a year would be more largely attended.

The expense is considerable for members from a distance, and most members have other societies to attend. He favored two meetings, in April and October.

Dr. Stearns said the success of the society depends on a full attendance, and some of the meetings were rather thinly attended, which threw a damper on the proceedings. Favored two meetings a year.

Dr. Fisher moved that the By-Laws be so amended as to provide for meetings on the second Tuesdays of April and October. Laid over, under the rules, to next meeting.

Letter of Clark Bell, Esq., was read, requesting the society to choose delegates to co-operate with a committee of the International Congress, on the best basis for International Statistics of Insanity and Classification

of Mental Diseases. The following gentlemen were chosen : Drs. J. P. Bancroft, Dr. Wm. B. Goldsmith, Dr. Walter Channing.

Dr. Stearns announced the sudden death of Dr. Shew, and moved that a committee be appointed, with full powers to draft resolutions called for by the recent deaths of three members, viz., Dr. Whittemore, Dr. Sawyer, and Dr. Shew. The chair appointed Drs. Stearns, Cowles and Goldsmith.

Dr. G. W. Russell then read a paper on "The Hibernation of Swallows."

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Dr. C. T. Russell then read a paper "On Physiognomy in Health and in Insanity."

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Dr. G. H. D. Rowe then read a paper by Dr. John S. Butler, on "Individualized Treatment of the Insane."

Dr. Stearns asked how far can we carry out in practice the theory of Dr. Bancroft's paper? He said: "In some of the photographs of the insane exhibited (which are the best I have ever seen), I should be in doubt, unless told, as to what form of insanity was indicated. Though there is a change of expression in insanity noticeable at once. I doubt if any classification of special forms of expression is possible except in the grosser and more thoroughly pronounced cases. In some of my patients I could classify the form of insanity by the expression, but in many more I could not."

Dr. Quimby remarked that Dr. Russell's paper was a very interesting one, and he thought he had fully proved his side of the question. In regard to the photographing of insane patients, he said that he had been making a series of photographs at the Worcester Chronic Asylum, but that they were not as good as the specimens exhibited. There are many changes in expression among the chronic insane. He had noticed it particularly in *jolie circulaire*. Thought photography would be an aid to diagnosis and of interest in comparing the different phases of the physi-

ognomy of the insane. Mentioned a patient whose expression changed in twenty-four hours so that her acquaintances did not know her.

Dr. Goldsmith thought that no photographs of the insane yet made public could compare with those exhibited by Dr. Bancroft, those taken of the same patients at different stages of the disease and in convalescence being especially interesting. He hoped they would be lithographed and published. Had tried in former years to photograph the insane, but the results were poor compared with those now obtained by instantaneous photography. The prominence of divergence of the eyes, as noticed by the writer and observed in his photographs, was new to him. The author did not mention one peculiarity which had seemed to him a noticeable feature in the physiognomy of many insane patients. This was the transverse wrinkles across the forehead, giving an ape-like expression, and perhaps most frequent in melancholic demented. He could not agree with Dr. Bancroft in thinking the brilliancy of the eyes a point of so great importance, or in ascribing it to changes in circulation, or of the fluid constituents of the eye. He believed in general that the eye itself had a less important place in expression than is popularly assigned it.

In some works of the sculptor the expression of emotion is almost perfect, though the eye can have little share in producing it.

The change in size of the pupils seemed to him the more frequent cause of increased brilliancy of appearance, as it was recognized that dilated pupils were often seen in cases where evidence of general nervous exhaustion exists. He thought Dr. Butler's paper a valuable one, and agreed with him in thinking that curable and appreciative patients should be separated from those who show their hopeless condition in their appearance. It was very common for patients to be depressed by the sight of such cases. They seemed harassed by the thought that they were likely to become like those "poor creatures," as

they usually called them. He believed that the lack of a systematic separation of this kind was one of the greatest weaknesses of hospitals for the insane as they now exist. He believed in small hospitals for curative work. Emerson says that "an institution is but the lengthened shadow of one room," and this should be true of an institution for the insane. It should not be so large that the personality of their chief cannot reach everyone. The superintendent's personal power cannot be delegated satisfactorily, even to assistants as capable as himself.

Dr. C. P. Bancroft gave credit to Drs. Benner and French, his assistants, for taking most of the photographs. He agreed with Dr. Butler's views of the harmful influence of chronic cases, or recent ones in many instances. At Concord it was difficult to keep his sensitive patients from coming on a group of demented in their daily walks. He thinks this fact is a strong argument against associated dining-rooms. It must be very unpleasant to some patients to meet demented at their meals. Associated dining-rooms take away the family and home feelings. Had intended to introduce the system at Concord, but had changed his plans.

Dr. G. W. Russell remarked that in spite of the opinions of superintendents that two hundred was the proper number of patients for a hospital; in practice hospitals were growing larger and larger. The recent cases are the ones requiring individualized treatment. The superintendent's time is not spent on the chronic insane to any great extent, and Dr. Butler himself would not regard it as necessary.

Dr. Fisher declined to discuss the papers at so late an hour. He would have mentioned, had time permitted, the "mud fishes" of Africa, which live many months in the dried up mud at the bottom of ponds and rivers. Also the goby, a similar fish, which goes across the country in search of water, using its swimming bladder as a lung, when out of water.

He remarked that twenty years ago he had photographed many insane patients, but found the old methods only adapted to quiet and demented patients. He had been in court recently as a witness in a will case, where a photograph of the alleged insane testator was admitted in evidence, and thought photographs of insane persons might have a medico-legal value.

Dr. J. P. Bancroft has been present at meetings of the Association of Superintendents when the old iron-clad "propositions" had been affirmed and reaffirmed. He was led to believe that, correct as they may have been for the times of their first adoption, later times have called for modification. The public will never provide for the rapidly-increasing body of the chronic, dependent insane, according to the demands of the "propositions."

The ideal hospital has not yet been reached. The type of the original hospital was the monastery, in which the pattern for one was the pattern for all. It is only by slow steps that what has been entailed upon us in hospital architecture can be outgrown, however unsatisfactory. The great defect in the past has been the lack of variety. The ideal hospital will provide the utmost facilities for individualizing influence and treatment, to meet not only individual symptoms, but tastes and conditions. To do this, hospital architecture must be elastic enough to accommodate itself to every manifestation of disease and variety of personal character. To do this it must greatly multiply the facilities for classification and the control of personal and social influences. If that calls for greater detachment of buildings, it must be submitted to, even at increased expense and convenience of administration.

Dr. Stearns asked Dr. Bancroft how far distinctive personal influence had succeeded with him in improving cases of acute insanity—how far does it influence the progress of disease?

Dr. Bancroft said a large proportion of cases will pass through the early stages of the disease before personal influence will much affect the course of symptoms; but

in some cases I think personal influence, aided by favoring surroundings, has much power, from 'the beginning, to modify the symptoms and abridge the attack. I believe even in a few cases, a "run" of mania or of melancholia may, by such influences, be prevented if taken early, cases which would otherwise run for long periods. He had also seen convalescents reach a point where only some one special influence would at once dispel the shadows of old delusion and leave the mind clear. He narrated cases illustrating these points.

SELECTIONS.

PSYCHIATRY.

DR. PLINY EARLE, ON CLASSIFICATION OF MENTAL DISEASES, has written the editor of the *Medico-Legal Journal* the following letter:

NORTHAMPTON, April 16, 1885.

CLARK BELL, ESQ.

My Dear Sir:—The subject submitted to the committee in question is, in reality, so broad that one may well hesitate to approach it, unless he have unlimited time and unbounded ability to work. It is as difficult as it is broad; and, although I am in full sympathy with the object in view in the appointment of the committee, and am as truly, not to say *painfully*, aware as anyone that the proposed classification is "a consummation" most "devoutly to be wished," and although, could my years be diminished by twenty-five, I would most cordially enter into the work, yet I greatly fear that the day is far distant at which a classification universally, or even generally satisfactory, can be achieved by an international committee, and adopted by an international association or convention, and that it will utterly fail to be of essential service in its practical application. It is to be hoped that, in this pessimistic view, I may be mistaken.

In the present state of our knowledge, no classification of insanity can be erected upon a pathological basis, for the very simple reason that, with but slight exceptions, the pathology of the disease is unknown; nor is it much easier to construct one upon its causes, since the cases in which the cause is evident are the exception and not the rule; while one having a physiological basis, like that of Dr. Laycock, presupposes an extent and an intimacy of positive knowledge in regard to the functions of the diverse regions of the cerebro-spinal mass, transcending, in my opinion, that of *any* physiologist, and far beyond that of the average expert in psychiatry.

Hence, for the most apparent, the most clearly defined,

and the best understood foundation for a nosological scheme for insanity, we are forced to fall back upon the symptomatology of the disease, *the apparent mental condition*, as judged from the outward manifestations. Thus we come to one of the oldest, altogether the simplest, and certainly the most practical.

SURGERY AMONG THE INSANE.—Dr. Giné (*La Independencia Medica*, May 1, 1886) discusses surgery among the insane. Erysipelas is of very frequent occurrence in insane hospitals, from irritation of slight wounds by the patients themselves. In many cases the cutaneous sensations of erysipelas form the basis of delusions and hallucinations, modifying the co-existing psychosis. In some cases erysipelas exercises a favorable influence on the psychosis. Eczema, of various types, is far from infrequent; modifies and is modified by insanity. Capillo-sebaceous dermatoses are very frequent. In some cases the sudden appearance of acute rosacea has immediately preceded recovery from insanity. Furuncles are very common. Anthrax is very common in acute types, especially in Bell's disease. In some cases it modifies favorably the psychosis abscesses in the insane, though usually of traumatic origin; are likely to display a gangrenous tendency; contusions are of frequent occurrence, but ecchymoses, of spontaneous origin, simulating bruises, are far from infrequent. Spontaneous facial ecchymoses of this type appear in dementia premonitory to a fatal termination. This trophic ecchymoses differs from the traumatic in not being painful to the touch, and not presenting any surface elevation. Othæmatoma is (in Dr. Giné's opinion) of trophic origin and serious prognostic significance. Spontaneous gangrene may occur among the insane in stuporous insanity, melancholia attonila epileptic stupor, parietic dementia, and hebephrenia.

The parietic dementia malignant bed-sore is of trophic origin. Wounds, of all types, occur among the insane, owing to self-mutilation tendencies and imperative impulses; owing to the tendency to place foreign bodies in the opening of the body. Œsophogotomy and allied operations, are sometimes found necessary. Fractures of the skull are not very fatal among the insane, and sometimes seem to exert a beneficial influence on the patient's insanity. Luxations and dislocations are common. Fractures of the long bones are also relatively common, especially in parietic

dementia. Strangulated hernia is so relatively frequent that careful watch should be kept on all ruptured patients. Trusses are contra-indicated in the insane, while suspensory bandages fulfill all requirements.

MORAL INSANITY.—Dr. Percy Smith (*Journal of Mental Science*, January, 1886) reports the case of a fifty-three-year-old man, whose family history gave evidence of insane taint. As a boy he was mischievous, restless and indolent, and changed from one avocation to another. He suddenly and improvidently married much below him, socially, etc., has changed from one avocation to another, and seems unable to appreciate the anxiety he has caused his relatives. His son, now æt. twenty-six, was, as a child, passionate, mischievous and cruel, etc.; was expelled from school, stole money and went to sea. He is now a soldier. He had been brought up by two careful aunts, and was free from the influence of the father.

Dr. D. H. Tuke (*Journal of Mental Science*, January, 1886) reports the case of a forty-two-year-old man who, as a child, was cruel, passionate, idle, sly, sullen and treacherous, etc.; maimed animals and younger children. The sight of blood has a strange effect on him. He becomes pale, nervous and restless, and indulges in his cruel proclivities, and cannot then control himself, which to some extent he can do at other times.

Dr. Kiernan (*Journal of Nervous and Mental Disease*, March, 1886) reports the case of a lady who, until an attack of typhus fever, was a refined wife and mother. Subsequent to this, there was noticeable, a coarseness not present before, and a tendency to malicious mischief toward her husband, whose sense of propriety she took an especial delight in outraging. She went on sprees, not because she liked alcohol, but because the sprees gave her husband a shock, which caused her intense pleasure. She has "strong spells of secret love," when she smashes glass, to feel "happy," from seeing the blood run from her cut fingers. If she can't do this she at this time uses obscene language. Her immoral conduct, despite her seemingly sound intellect, was so demonstrably insane, that one of the very obtuse Illinois "trial for insanity" juries, readily committed her to an insane hospital.

NERVOUS TROUBLES IN SLOW MERCURIAL INTOXICATION.
—I. Slow mercurial poisoning gives rise to a certain number of nervous troubles which constitute the greater

part of its symptomatology. 2. These nervous troubles can be attributed, in part, to the presence of mercury in the nervous centers, where it has frequently been found, and in part to lesions of the cerebro-spinal system, which have been described by Wising. One of the most curious characteristics of these lesions is the persistence of the axis cylinder in the altered regions. This last condition is found in the lesions of sclerosis in plaques, which, moreover, in its clinical features show some analogies with cerebro-spinal hydrargyrosis. 3. The nervous troubles of hydrargyrosis are: *a.* Disturbance of motion; trembling analogous to that of sclerosis in plaques; convulsive phenomena of various kinds (cramps, epileptiform attacks, etc.), choreic movements, apoplectiform ictus, paralyses presenting the features of paralysis of cerebral origin. *b.* Disturbance of sensibility; anæsthesia presenting the features of anæsthesia of cerebral origin; painful phenomena, of which the most constant are the arthralgias and cephalalgias. *c.* Disturbances of a psychical nature which are at first excessively emotional; disturbances of sleep, vertigo, and, toward the last, dementia very much resembling senile dementia. 4. In general, these nervous disorders persist for a very long time; they may be greatly benefited, but only rarely can an absolute cure be obtained.—PHILIPPE MÉRCHAL, *Thèse de Paris*, 1885.

THE USE OF ALCOHOL IN NERVOUS DISEASES.—In a paper read by Dr. Brosius before the International Psychiatrial Congress, September 7, 1885, the author advocates the use of alcohol, under the form of wine and beer, in nervous and psychiatrial diseases. The following are his conclusions: 1. The moderate indulgence in spirituous liquors is in itself never hurtful in psychoses or nervous diseases. 2. Larger doses (a pint of Rhine wine, sherry, etc.) are comparatively certain calmatives and even hypnotics in states of excitation. 3. In all patients refusing nourishment, in dyspepsia, and especially in paralytics, alcohol is a respiratory nutriment, as defined by Binz. 4. In all cases of withdrawal after morphinism, bromism, etc., to prevent collapse, a liberal administration of alcoholic beverages is necessary. Wine and beer, but not whiskies or cognacs (on account of the poisonous amyl-alcohol contained in them), are to be employed.

CHRONIC ABUSE OF CHLORAL. (*Chronischer Chloral missbrauch. Arch. f. Psych.* XVII. I.) Chloral some-

times produces an aggravation of the symptoms for which it is given. Even in simple sleeplessness it is not always reliable, and gives rise to depression and apathy. It is advisable to cease the drug at intervals, in order that the brain may not become accustomed to it, and to substitute some other hypnotic. The continual use of chloral produces vaso-paralytic disturbances, eruptions of the skin, and inflammations of the mucous membranes. Voraciousness, retention of urine, epileptiform attacks, mental dullness and depression, and loss of flesh are among the consequences of the prolonged use of the drug. These effects are due to the formation of chloroform, or chlorine, which paralyzes the vaso-motor centers.

AFFINITY OF THE INSANELY DISPOSED FOR EACH OTHER.—Bannister (*Journal of Nervous and Mental Disease*, 1882) called attention to the fact that victims of neurotic heredity have a tendency for each other, and cited several observations tending to prove this. Dr. Manning (*Australasia Medical Gazette*, August 5th, 1885) has called attention to the same fact in Australia. Dr. Yellowlees (*British Medical Journal*, August 1st, 1885), says that unfortunately excitable, unstable folk, have a remarkable attraction for each other. Dr. Kiernan (*Neurological Review*, No. 1, 1886) has cited a case in which paranoiacs intermarried. When these facts are taken into consideration, it is scarcely surprising that the conservative tendency on which such stress was, and is laid, in discussions of heredity, should exert so little influence.

EXORCISM IN INSANITY.—Dr. H. C. Wood (*Therapeutic Gazette*, December, 1885) reports the case of a melancholic female friend who recovered after the sudden use of the Scriptural formula "Silver and gold have I none, but such as I have, give I thee: in the name of Jesus of Nazareth, rise up and walk." The belief in exorcism for the treatment of insanity is still to be found among the Irish and Italian Roman Catholics, and is occasionally resorted to in cases of religious melancholia, with decidedly good results.

NEUROTHERAPY.

OÖPHORECTORY AND INSANITY.—Dr. R. Barwell (*Medical and Surgical Reporter*, May 29, 1886) removed the

left ovary of an unmarried woman after withdrawing twenty-eight pints of fluid October 28. On the third day the temperature for two hours was 102.4° but this was the only noticeable temperature. The abdominal wound healed November 2nd. November 3rd, the hitherto docile patient became aggressive and contradictory. November 5th, she was demonstrably insane. November 7th, she was very violent. November 12, after various phases of comparative violence and calm, but with loquacity, the patient continued entirely insane, sleeping only in short snatches about two hours out of the twenty-four, until the 19th. She then somewhat improved and seemed to recognize her mental condition, saying she was mad. After this she gradually improved, and by November 28th was regarded as sane, but was kept under surveillance until December 29th, when she was discharged in perfect mental health. Dr. Barwell, in bringing this case before the London Clinical Society, said that no hereditary tendency was discoverable. It was not due to renal trouble. The amount of blood lost by the kidney, if any was insufficient to produce grave effects. Hæmaturia was not uncommon after intraperitoneal operations performed under a carbolic spray. Although disturbance of the generative organs appeared, at first sight, to offer the easiest explanation, in this case there were none of the erotic symptoms usually associated with abnormal states of that system. Perhaps some might see an analogy between puerperal insanity and mental disturbance in this case. Mere coincidence might be justly considered the best way of accounting for insanity thus following ovariectomy if this were an isolated instance, but Dr. Keith had had one case (after hysterectomy); Mr. Thornton, two (ovariectomy and hysterectomy); there had been a case at St. Thomas's Hospital, and one had been noted by Mr. Dent. Thus, mere coincidence would not account for the circumstances which it appeared desirable should be known in the profession. In the discussion it was stated by the president, that Mr. Lawson Tait reported a case of mania. He had seen cases of mania after oöphorectomy.

Dr. Doran had observed the case of a married woman, who had both ovaries removed. She had previously presented no mental symptoms, but within a few weeks after the operation became and remained insane. Insanity connected with organic disease of the gen-

ital organs was not necessarily of the nymphomania type.

Mr. Meredith thought the cases not so rare. He had seen symptoms of insanity come on two weeks after operation; but once, for four weeks after the removal of a large tumor, weighing 70 lbs., from a single woman, aged 54, no bad symptoms resulted, and then the patient was seized suddenly with acute melancholia; she was apathetic, but not really violent. The symptoms lasted for two months without intermission, and then disappeared suddenly, and she had remained quite well ever since (four years). There were no urinary symptoms, and no hereditary tendency. He had seen acute mania following amputation of the breast. Dr. Edis said that patients were often very nervous and subjected to 'high nerve-tension, before the operation. In many, the nervous system was immobile, and easily gave way under such provocation. He remembered the case of a farmer's wife who was hypochondriacal, with oval face, dark skin, weighing her words, as if with a sinister meaning, who, after the operation of ovariectomy, developed symptoms of melancholia. She became quite well. The symptoms lasted for ten days. He thought the symptoms of insanity were not so unusual as one might imagine.

Mr. Benham thought these cases might be paralleled to those of puerperal insanity, which he had never seen well explained. Dr. Blandford said that there was much connected with ovariectomy which might give rise to mental symptoms. The patient had before her mind, for some time before the operation, what she had to undergo. Her not taking much food, and her bowels locked up with opium. Opium had the effect upon some persons of keeping them awake. The mania had nothing to do with urinary trouble. The case was one of genuine mania. Dr. Barwell said that although he might not have been exactly correct in his description of the mania, he hoped its occurrence was unusual. His object had been fully achieved if he had succeeded in directing attention to the matter. Every operation, of course, must disturb the thoughts for a little time; but, in simple cases of this description, the patients recovered with remarkable ease. He thought the case of Dr. Edis was hardly comparable with his, as the patient was not in an abnormal condition before the operation was performed.

In America similar cases have been reported by T.

Gaillard Thomas (*New York Medical Journal*, June 21, 1884.) Dr. Barwell states that if insanity were an occasional sequel of surgical operations, the matter was not mentioned in surgical writings. But many of the older surgeons recognized a *delirium nervosum* which certainly was an analogous condition. Herzog (*Zeitschrift fuer Psychiatrie*, 1842) has reported insanity after surgical operations on the eye, and the like cases have been reported by Schnabel, Landesberg and others.

THE THERAPEUTIC ACTION OF THEINE.—The active principles of coffee and tea are generally considered identical, chemically and physiologically. Recent investigations have shown, however, that they differ in at least part of their physiological effect. Dr. Thomas H. Mays, of Philadelphia, has conducted some experiments to determine the effects of theine and caffeine upon the nervous system. An account of these experiments appeared in the *Therapeutic Gazette* for September, 1885. We have before us the *Medical News* of December 12, 1885, which contains a second article from Dr. Mays, entitled "The Therapeutic Action of Theine; A New Analgesic." The author of the paper first presents the following conclusions concerning the physiological action of theine upon the nervous systems of the lower animals, drawn from the experiments already alluded to: (1) "It (theine) paralyzes sensation before motion; (2) it impairs sensibility from the center to the periphery, and not, like brucine and cocaine, from the periphery to the center; (3) it produces convulsions, which are spinal and not vertebral; (4) it has a more powerful action on the sensory nerves, and less on the motor nerves than caffeine." Dr. May's next step was to try the physiological action of theine upon the healthy human being. For this purpose he made hypodermic injections of the drug, and found that there was "a general agreement in the symptoms which developed." He gives in full the details of one case in which "one-fifth grain of theine was injected into the left forearm near the elbow" In six minutes there was "diminished sensibility extending as far as the hand." Three minutes later the "sense of touch was impaired in tips of fingers." The impairment of sensation around and below the point of injection steadily decreased, and "in fifty minutes after its administration sensibility was absolutely gone around seat of injection." Sensibility was not entirely restored.

for six hours after the injections, and became *normal in the forearm* while the *tips of the fingers* were still numb. There was not at any time any impairment of motion *above* the elbow. Motion was not affected in the least, there was no difference in the temperature of the two hands, the pupils were unaffected, pulse remained steady. and there was no constitutional disturbance whatever. The only unpleasant symptoms were slight burning at the seat of injection (which soon passed off), the prickly sensation of a limb when it is "asleep," and the occurrence of "slight shooting pains along the posterior part of the arm above the elbow," occurring thirteen minutes after the injection had been given. The objective physiological action being apparently the same that had been observed in the lower animals, he was led "to believe that theine would be efficacious in the treatment of painful affections of the long nerves." To determine its efficacy, he tried it in two cases then under his care. The first was a case of constant pain in right leg from hip to foot, which had lasted six months. The pain followed the course of the nerves of the leg. The leg was considerably atrophied, and was weak and uncertain in its gait. For two months all forms of treatment had been without avail, and on July 18th he injected one-fifth grain of theine into the calf of the leg. The pain ceased in five minutes and never returned in its original force. In half an hour the heel and foot began to feel numb and insensible, which lasted for about twelve hours. Two days later Dr. Mays injected one-fifth grain into the thigh. One week later one-fifth grain was injected over instep, and the patient was then free from pain till September 6th, when a last injection was given. From that time on she made an uninterrupted recovery; the leg began to fill out, and at the present writing, is of the same dimensions as the left." The second case was one of pain in right shoulder, extending from right side of spinal column along the arm to the tip of her fingers. There was "great tenderness on pressure over right brachial plexus." After the persistent use of other remedies had failed, he "injected one-fifth grain of theine over right brachial plexus." In ten minutes the "neuralgic pain in the back was relieved;" in fifteen "the diminution of sensibility had extended from shoulder down the arm," and in twenty "anæsthesia was marked around seat of injection." In forty eight hours there was no return of

pain. Concerning the dose of theine, Dr. Mays remarks that "in one-tenth, one-fifth and even one-third grain doses, it is entirely free from dangerous consequences, and that the only inconvenience which it causes is a slight but transient burning at the point of introduction."—*Maryland Medical Journal*.

URETHAN AS AN HYPNOTIC.—(*Beitrag zur Wirkung des Urethan bei Geisteskranken*. Von Dr. R. Otto und Dr. W. Kœnig in Dalldorf.—Urethan, as an hypnotic, was given with varying results, in the female wards of the insane asylum at Dalldorf. In the excitement of general paresis of women, it had a satisfactory effect in medium doses, as well as in larger ones, only in one half of the cases. In epileptics with slight depressions the results were more favorable. Best of all is the effect in idiotic children of four, five and ten years, to produce sleep during periods of excitement. The usual dose in adults is from one half to one drachm. Two-drachm and two-and-a-half-drachm doses did not increase the efficacy of the drug, but tended to develop unpleasant symptoms, such as nausea, vomiting. In the male wards the observations and results coincided with those obtained in the female department. The prolonged use of urethan is apt to give rise to gastric disturbances, as pointed out by Schmiedeberg, who first experimented with the drug. In some paralytics it served to develop a decided stupor after the continuous use of three to four weeks. Want of appetite is another disagreeable symptom.

Paraldehyde is more reliable than urethan. In spite of its taste it was by some patients preferred to urethan, because it is, after a continued use, free from unpleasant effects. Large doses are not advisable. One half to one drachm is the medium dose. The best results of the drug were seen in states of excitation in idiotic children.

According to C. de Vincente (*Rivista Internal. de Scien., etc.*, 1885, '86, No. 3), paraldehyde may be given up to 10.0 grammes ($2\frac{1}{2}$ drachms) *pro die*, without any bad symptoms. The best way of administering it is in peppermint water. Sleep ensues in from fifteen to twenty minutes. It acts particularly well in cerebral excitation, and in sleeplessness due to emotional disturbances.

USES OF URETHAN.—Concerning Urethan, Dr. J. S. Jewell, in an editorial in the initial number of the *Neu-*

rological Review, says: We have used, to a very considerable extent, *Urethan*, the new hypnotic brought lately into notice. We have found:

1st. That it is an efficient hypnotic, not so certain to produce sleep as chloral-hydrate.

2d. If it does not produce full sleep, it has seemed more certain than chloral to lead to unpleasant dreams.

3d. It has but little influence in lowering cardiac tension. In this, it happily differs from chloral.

4th. It is seldom efficient in less doses than ten to thirty grains. Its action is not quite so prolonged as that of chloral-hydrate. Upon the whole, we feel that *Urethan* is a precious acquisition to the yet narrow range of hypnotics.

5th. As might be expected, it diminishes reflex excitability to a rather marked extent. It is hence valuable in convulsive disorders of children and in allaying nervousness. For these purposes it should be given in doses not to exceed three to fifteen grains every two to six hours.

6th. From the best we have been able to learn, it is to be preferred in most cases to either chloral-hydrate, croton chloral or hypnone, on account of the slightness of its effect in depressing or exhausting the nervo-vascular apparatus.

The editor of the *ALIENIST AND NEUROLOGIST* has given the remedy a trial, and while not yet convinced of its superiority over chloral, is pretty well pleased with it as a substitute; chloral, however, has proven a very satisfactory agent in our hands, and we have never found it unduly depressant in a single dose at night suited to the patient's symptoms.

ANÆSTHESIA OF THE SKIN BY COCAINE.—(*Eine Methode Haut anæsthesie durch Cocain zu erzeugen.* A method to produce anæsthesia of the skin by cocaine.) By Wagner. *Wien. Med. Blaetter*, 1886, No. 6.—Various attempts have been made to anæsthetize the skin in the same manner as the mucous membranes, so far, however, without success; neither subcutaneous injections nor inunction of the alkaloid had the desired effect. Wagner seems to have succeeded by means of electricity. It is done by moistening the plate of the anode-electrode with a five per cent. solution of cocaine, and applying it (6 milliampères) for four or five minutes to the part to be anæsthetized

The cathode may be placed anywhere. He could thus produce complete anæsthesia on the flexor side of the upper arm.

URETHAN SUBCUTANEOUSLY APPLIED.—Rottenbiller injected, from motives of economy and therapeutical investigation, urethan, in a number of cases of dementia and progressive paralysis. The injections were painless and were not followed by abscesses. The dose of injection was about five grains repeated twice or three times. R. is the first who employed urethan hypodermatically. His results are, on the whole, encouraging. The number of cases reported is only a small one. In one case of maniacal excitement of general paresis he had to fall back on paraldehyde. The medium doses, per os, is one half to one drachm; larger doses are not well borne.—*Zur Wirkung des Urethans bei Subcutaner Anwendung*, von Dr. Hans Rottenbiller.

ANTIPYRIN IN PHTHISICAL INSANITY.—Dr. S. V. Clevenger (*Journal of Nervous and Mental Disease*, March, 1886) states that at the Alexian Brothers Hospital, Chicago, a Pole, suffering from phthisis, was brought in, with well-marked phthisical insanity, destructive and suspicious; temperature 103° F. Seven grains of antipyrin ended the insanity (which had been of two weeks' duration,) in an hour. Two weeks after, the patient was discharged cured as to the psychosis. In all probability the case was one due to febrile disturbance rather than phthisis.

A REMARKABLE LESION OF THE NERVE CENTERS IN LEUCOCYTHÆMIA.—Dr. Byron Bramwell reports (*British Medical Journal*) a typical case of leucocythæmia in which the vessels of the nerve-centers presented remarkable varicosities. He thinks, also, that he observed micrococci in the substance of the superior cervicle ganglia. It is thought that this condition of extraordinary vascular dilatation and extravasation may not be unusual in leucocythæmia, although no cases of the kind have heretofore been put on record.

DIPSOMANIA.—N. Popow (*Wratsch*, 1886, No. 10.) in an article on the treatment of dipsomania, details, in two cases, the effect of the nitrate of strychnia as recommended by Luton, Dugardin, Beaumetz and others. In one case he

could cut short or prevent attacks by injecting from 1-60th to 1-30th of a grain per dose three to six times per week; in the second case like favorable results were obtained.

PILOCARPIN IN TETANUS RHEUMATICUS.—A. Brunauer (*Pesther Med. Chir. Press*, 1886, No. 11) describes a case of rheumatic tetanus in a woman, æt. forty (tem. 38° in the morning, 38.0 in the evening, pulse 110), which was cured by the hypodermic injection of pilocarpin 0.02 (one-third grain) once a day. In nine days the convulsions disappeared, and the patient could open the mouth.

NEUROLOGY.

UEBER ZWEI FAELLE VON TABES DORSALIS MIT ERHALTENEM KNIE PHÄNOMEN. AUTOPSIE. BERLINER GESELLSCH. F. PSYCH. U. NERVENKH., March 8, 1886. Westphal reports, in *Neurol. Centbl.*, 1886, No. 6: For a long time W. had directed his attention to ascertaining the exact spot in the posterior columns in the lower dorsal and the beginning of the lumbar portions of the spinal cord, a disease of which gives rise to the disappearance of the knee phenomenon. Certain cases pointed towards—not the *internal*—but the *external* portions of the posterior columns.

Basing his opinion on a small number of cases examined, *ante* and *post-mortem*, in which the knee phenomenon remained intact up to a short time preceding death, he comes to the conclusion that the knee phenomenon disappears when disease of the radicular zones of the posterior tracts sets in, and that degeneration of the roots of the posterior tracts is not essential in causing its disappearance. These roots may be intact although the knee phenomenon is gone.

Finally, W. refutes the idea of some French authors (Déjérine) who claim that tabes depends on a meningitic process.

CONTRACTURE OF KNEE JOINTS.—(*Ueber die Kœnig'sche Flexions contractin der Kniegelenke bei Gehirnkrankheiten* von Dr. Bull. *Berl. Klin. Wochenschr.*, 1885, No. 47. Report of *Neurol. Centbl.*, 1886, No. 6. On Kœnig's flexion contracture of the knee joints in cerebral diseases.) This symptom, made known by Dr. Kœnig, of Petersburg,

is of diagnostic importance. It consists in this: If the thighs of the patient be flexed at the hips, the knee joints cannot be extended, on account of contracture of the flexor muscles. Kœnig found the symptom in meningitis, cerebral hemorrhage, thrombosis of the transverse sinus, carcinoma and hyperæmia of the brain. Bull confirms the symptom of Kœnig for a case of tubercular meningitis, cerebellar tumor and thrombosis of the sinus transversus sinister. A common characteristic of these affections is, in the author's opinion, an increase in cerebral pressure, and he gives the following explanation of the symptom: During a simultaneous rectangular (not acute angular) flexion in hip and knee, the posterior thigh muscles become stretched, and in an individual with a cerebral disease—cerebral pressure—this pressure works like an irritation, producing a spastic reflex contracture of the flexor muscles. This contracture is dissolved as soon as the stretching of these muscles is done away with, by extension of the hip-joint.

ON TABES WITH PRESERVED KNEE PHENOMENON.—(*Berliner Ges. f. Psychiatrie u. Nervenkh.*, 10 May, 1886.—Report in *Neurol. Centbl.*, May 15, 1886): In the discussion on Westphal's paper, read in a previous meeting, Bernhardt remarks that he too has seen cases of tabes with the knee phenomenon intact.

Mendel relates a case of tumor cerebelli with a spinal cord microscopically healthy, in which, during life, the knee phenomenon was absent. In a case of hemorrhage in the medulla oblongata the knee phenomenon was likewise absent. Such cases are unexplainable.

Thomsen has observed ten cases of meningitis cerebrospinalis and m. tuberculosa, in which five times the knee phenomenon was found to be missing (in one case it returned later on). All of the ten spinal cords were examined and no pathological lesions could be demonstrated. Thomsen thinks it necessary to examine, in such cases, the peripheral nerves.

Westphal says that he never made the assertion that the missing of the knee phenomenon is met with only in tabes. He has observed this symptom in cerebral trouble, and believes that here an extraordinary weakening of the muscle powers exists; for he has seen, in one patient, for instance, who suffered from violent convulsions, with loss of consciousness, that the knee phenomenon was wanting

as long as—after cessation of the spasms and during complete relaxation of the muscles—the patient was unconscious. After the return of consciousness the knee phenomenon also returned. Jendrassik's method, too, might be explained in this way, that by it an involuntary, stronger innervation of all the muscles, consequently also those of the quadriceps femoris, takes place, and that the stronger muscle tonus thus produced allows of the appearance of the phenomenon at a time when, during the common, quiet attitude, it is missing.

NEUROPHYSIOLOGY.

THE FUNCTION OF THE RECURRENT LARYNGEAL NERVE.—The mode of action of the recurrent laryngeal nerve, supplying as it does muscles so important in their use, both phonatory and respiratory, and yet so opposed in their action, is a much-mooted point upon which Dr. Frank Donaldson, Jr., of Baltimore, endeavors to throw additional light, in an experimental paper in the July number of *The American Journal of the Medical Sciences*. The recurrent laryngeal supplies all the intrinsic muscles of the larynx with the exception of the crico-thyroid, and it is chiefly a motor nerve. It is a physiological fact, also, that the internal thyro-arytenoids, the lateral crico-arytenoids, and the transverse arytenoids, are the adductor (the phonatory) muscles of the larynx, and that the posterior crico-arytenoids are the abductor (the respiratory) muscles of that organ, and all these muscles receive their nerve supply from the recurrent laryngeal. This nerve then must contain two sets of fibers, which innervate muscles of separate and distinct functions. How, and under what circumstances, the constrictor or respiratory function of this nerve assert itself, is the important question to be answered.

As the result of his experimentation and study Dr. Donaldson explains the innervation of the larynx somewhat as follows: Breathing is an involuntary act, though the diaphragm and all the other muscles employed in respiration are voluntary muscles; and though respiration may be modified within very wide limits by the will, yet we habitually breathe without the intervention of the will. The larynx is an essential part of the respiratory apparatus and is immediately connected with, and must receive

impulses from the respiratory center in the medulla, and its respiratory function is the most important; for the purpose of preserving life the glottis must be kept open, and so we find that the cords, even in normal breathing, at each inspiration are pulled slightly away from their apparently normal position between extreme abduction and extreme adduction. The fact that in deep narcosis the cords are pulled widely apart, would seem to show that stronger stimuli than usual are proceeding from the respiratory center to the abductor muscles; for in all deep narcosis the tendency is toward dyspnoea, and always in this condition normal respiratory muscles are called into greater play. The constrictors of the larynx are apparently always in a state of partial tonic contraction, and ready for use at any moment; and the respiratory function of the larynx being for the moment in abeyance, the protective or constrictor function of that organ asserts itself. Again, it is well known that great changes can be brought about in the respiratory movements by the will; while, on the other hand, the respiratory center is the one most frequently affected by nervous impulses from various quarters. He thinks that his experiments support the supposition that both the respiratory and constrictor (or protective) functions of the glottis are governed by those laws which govern the rest of the respiratory apparatus. The larynx, being part of the general respiratory apparatus, its inspiratory and expiratory (constricting) functions are under the same nerve control as the rest of the organs concerned in inspiration, and under no circumstances are these functions suspended.

There seems to be a similarity between the nerve fibers of the recurrent and those of the pneumogastric; the two sets of fibers of the recurrent supply opposite sets of muscles, and may be likened to the two kinds of nerve fibers composing the pneumogastric—the one answering to less, the other to stronger stimuli.

PHYSIOLOGY.

VULPIAN ON THE TRIGEMINUS.—M. Vulpian has conducted a series of experiments tending to show conclusively that the trigeminus, or great sensitive nerve of the face and head, contains vaso-motor fibers, from its origin

(nucleus) in the medulla and cord. Irritation, therefore, of the peripheral ends of its sensitive fibers, as in the teeth, throat, skin of the face, nasal mucous membrane (in certain areas), eyes, etc., may give rise to immediate vascular reflexes along the course of the vaso-motor fibers, shown by Prof. Vulpian to be bound up in the trunk of the trigeminus.—Editorial in the *Neurological Review*.

EDITORIAL.

[*The Editor is responsible for all Unsigned Editorial Matter.*]

Inhumanity to the Insane.—The State Lunacy Commissioners of Pennsylvania lately brought to light the case of an insane woman who, for many years had been kept in a state of filthy captivity by relatives. An old farmer, living about thirteen miles from Wysox, in Bradford County, had an insane daughter caged in an out-house, where she had been for the past ten years, and where they found her lying neglected, exposed, and in a condition of uncleanness too horrible to describe. The mind of the unfortunate woman became unsettled about twenty-six years previously, from overwork, and her parents, who were opposed to putting her in an asylum where she might have recovered her reason, kept her about the house. She gradually grew worse. About ten years ago she became unmanageable, and a small wooden structure was built, into which she was placed, and outside of which she has never since put her foot.

Dr. Thomas G. Morton and Dr. Ourt, members of the commission, went to inquire into the affair. On reaching their destination they were accosted by a man past eighty years, who, in answer to a question, replied that he was the farmer they were in search of.

They asked him if the report that he had an insane daughter imprisoned upon the farm was correct. He said it was, and after Dr. Morton told him the object of their visit and asked him why he had not sent her to the asylum, he replied that he could not afford to pay her board, and besides, he always thought that crazy people were not treated well in insane asylums. He hesitated a while before answering the request to see his daughter; but, finally getting a bunch of keys, he led the way to a one-story frame building, situated about fifty yards from the house and a hundred yards from a road that seemed as though it was never used. The structure was about ten feet square, with a door and window, the latter heavily barred.

The usual filthy litter of straw for a bed was there,

and the usual abandoned, frightened, neglected and pitiable victim of ignorance and prejudice in regard to asylum-care of the insane was there.

We have known a patient to be taken from a well-conducted State asylum and cared for like this poor creature of Wysox.

The same individual and community indifference and inhumanity towards this unfortunate woman, which complacently permits and sanctions such shameful neglect of the plainest duty toward such helpless afflicted, would probably strain at a gnat while swallowing a camel, to detect and reprove anything but the most perfect cleanliness and the utmost freedom for the insane in the State and private asylums, seeing with Argus eyes and hearing with audiphone ears, every semblance or report of short-coming in those who have the custody of hundreds of these unfortunates, who are in so many instances, so hard to properly care for, accepting the delusive, perverted statements of unrecovered patients, and the malicious accounts of delinquent and discharged employes' as gospel truth.

We are on the outside of a hospital for the insane now, but in times gone by, we familiarized ourselves with the practical working and management of such institutions from within, and know how severe is the strain, how great the care, and how difficult are the labors of hospital superintendents, and know that no men have a harder task, and no men more conscientiously perform it, as a rule. To govern a State is nothing to successfully managing a lunatic asylum.

To so combine skill in medical treatment and executive management, as to secure to these unfortunate afflicted ones the kind of treatment and care their maladies require, and enforce a feeling on the part of attendants, of absolute gentility and kindness, and all the liberty their malady justifies and the safety of others permits, is no easy task; and it has been the systematic and systematized study of the Association of Superintendents of American Hospitals for the Insane, for half a century; and one needs but to visit and dispassionately study the conduct of the average asylum, not conducted by political influence or used for political purposes, to realize and confess how near the golden rule is carried out in these institutions, despite the popular prejudice against them and the lower standard of humanity prevailing towards the insane

in the minds of many of the people of the great wide world outside.

When the work of the asylums is viewed without prejudice by the world outside of them, the insane will be sent to reside in them more readily, and many of the casualties which daily result from insanity which ought to be under restraint and medical treatment, will be averted, and thousands of lives which go out in suicide or perpetual mental darkness, will be saved to the usefulness of rational life, and the annual harvest of appalling murders and other casualties resulting from lunatics needing restraint, but permitted to be at large, will be greatly reduced. A world of woe which now prevails would be prevented if the true status and disposition of the so-called harmless insane, and the insane whose insanity is disputed by certain public censors, but clearly recognized by experts, were timely appreciated and properly disposed of. One of the crimes of the age, perpetrated in the sacred name of freedom, is the keeping away from proper custody, care, and hospital treatment, in the curable stage of their malady, large numbers of the insane, some of them but slightly so apparently, who might be saved, but are doomed by misdirected sympathy and unjust suspicion of the medical profession in its dealing with these victims of disease—a profession that first struck the shackles from the lunatic and recognized him as a friend and afflicted brother, needing medical aid and kindly care, when the world and the Church called him fiend and devil, shunned him as a monster, and put him away from sight in dungeon darkness behind prison bars, and gave him gloomy abodes and neglect as the just remedy for his affliction or reward for his folly, until the kindly hands of Chiangi, Pinel and Tuke, and their medical *confrères*, lifted them up to their just level of humanity, and taught the world a new lesson in philanthropy.

It is strange that this profession, after years of demonstrated regard for the insane, attested in the hundreds of hospitals erected through its efforts, and dedicated to their cure and care, should ever be distrusted in their attitude towards and dealings with these children of the direst of misfortunes.

In every country to-day are hundreds, who, by timely medical treatment, have recovered reason lost, and minds threatened with perpetual derangement, who bless these modern instrumentalities of their restoration. They come

back to the world of rational life, and testify as though risen from the dead; yet in the world of sane people there are numbers now living who are destined to die hopelessly insane, because they will be kept by ignorance, prejudice and unjust suspicion, from that timely hospital or expert medical care in the incipiency of their malady, which might save them; for insanity in its earlier stages, in the first attack, is one of the recoverable of maladies, while in its chronic stages, it is one of the most hopeless, as it is one of the most pitiable of afflictions.

It is a cruel crime in science, that knows better, to countenance the neglect of timely treatment and judicious combat of even the mildest forms of mental derangement; and it is the extreme of selfishness and wrong to the poor victim of disease, to neglect him or countenance neglect of his malady, because the patient is harmless to the community. The mildest forms of insanity are never harmless to their unfortunate victims, and science, in its sane estate, should come to their rescue and importune the State until it yields, to protect them. The right to a rational chance for recovery, at the hands of those who are well in mind, is one of the rights which appertain to insanity whether it be rational enough to demand its rights or not." Great wrongs are often inflicted, as much by neglect as by violence; and mild-mannered lunatics who, because they hurt nobody, are allowed to freely follow their own disease-perverted inclinations, may be wronged as much by being let alone, without treatment, as the violent maniacs were by the old-time dungeons, chains and seclusion.

Non-interference with harmless lunacy, in its early, curable stage, in king or peasant, is unphilanthropic.

Had timely care been taken of the king, Bavaria would not to-day be mourning a self-destroyed monarch and a great physician drowned, while attempting to rescue him. When reason is dethroned, whether it be mild or violent in its manifestation, it should, for its own good, become subject to minds that are yet masters of their right reason.

The Bavarian court physician is reported to have maintained the sanity of the king to the last, notwithstanding his many morbid vagaries. There are medical men who never see insanity except in overt acts of insane violence or folly, and Dr. Schleiss may have been

one of this kind. What a pity that Dr. Gudden's final caution had not been equal to his correctly made diagnosis.

Though we may display too much caution sometimes for the patient's welfare, we cannot be too watchful of insanity for the good of the community. Had more caution been observed in the case of Dr. Richmond, the late horrible tragedy at St. Joseph, in this State, would have been averted. But others like them are still to happen, because of over-confidence in the insane, and public distrust of expert opinion if unconfirmed by the symptoms generally recognized.

The Dead Physician to the Bavarian King.—

Dr. Bernhard Von Gudden, who lost his life while in attendance upon the insane King of Bavaria, in attempting to rescue his sovereign from a suicidal drowning, was a medical professor in the University of Munich, universally esteemed for personal and professional qualities, by his medical brethren of Bavaria and his *confrères* throughout Europe. He was well known to the medical world, and esteemed by the alienists of this country as the medical head of the Munich Asylum for the Insane, and by his contributions to medical literature. He was born at Cleves, June 7, 1824. After distinguishing himself as a student, he became assistant to the famous psychiatrist, Dr. Jacoby. In 1869 he was appointed head of the asylum at Werneck.

The Sequency of Railroad Accidents.—

D. H. Oppenheim, Assistant to the Clinic for Nervous Diseases at Charité Hospital, Berlin, in an article in the *Archiv. für Physiol.*, Bd. xvi. H. 3. '85, reaches the conclusion in which all neurologists who have much to do with such cases concur, that the abnormal molecular changes in cord and brain, but more especially within the cranium, which have their beginning in cerebro-spinal concussions following railroad accidents, especially collisions and the violent precipitation of cars from the track, are not, of course, immediately seen, but after the lapse of a little time their true effects are seen in symptom groupings that cannot be dispelled or explained by suggestions of hysteria, and the fact that hysteria develops in persons who have never had the trouble before; for a sequence of a powerful railroad shock should be regarded as an evidence of the gravity of the accident and resultant injury, unless it

can be otherwise accounted for. Hysteria is itself a gross nervous affection when it comes in this way.

The *Philadelphia Medical and Surgical Reporter*, with its usual discrimination in matters medical, gives deserved prominence to this timely contribution of Oppenheim, and the *Medical Review*, of this city, with equal appreciation of the practical importance of the subject, gives place to the *Reporter's* editorial on Oppenheim's observations, as follows:

When a serious accident happens on railroads, the more visible lesions are generally the only ones reported. But after-injuries to the head, and after all accidents which are accompanied by more or less concussion, by more or less shock, the immediate consequences are often the least dangerous, and the injuries which the nervous system receives, and which generally make their appearance later, are more important than the morbid signs first visible at the time of the accident.

That the subject has received special attention only of late cannot surprise, for the attending surgeon, after the wounds have healed for the treatment of which he was called in, leaves the patient apparently restored, and often never hears of him again. But of late the grave consequences of such accidents to the nervous system have become more frequent, probably because the concussion suffered by the victims of modern railroad wrecks is severer, on account of the greater swiftness of the trains.

Charcot considered the nervous phenomena, which so often develop after the immediate consequences of these injuries have disappeared, to be of an hysterical character; and this view has been held by most observers until Dr. H. Oppenheim, Assistant to the Nervous Clinic of the Charité Hospital in Berlin, investigated the subject, and published the result of his researches in the *Arch. f. Physiol.*, Bd. xvi., H. 3, '85.

From this report, we learn that the psychical disturbances occurring after such accidents usually assume the character of hypochondriasis, while amongst true neuroses hysteria, epilepsy, and various forms of neurasthenia are observed. That we have to do in these cases with genuine neuroses is apparent from a group of symptoms very common in these cases; stubborn headache, vertigo, vomiting, disturbances of motion, impairment of motion, impotency, difficulty in micturition, sensation of a tight band around the trunk, and even immobility of the pupils and atrophy of the optic nerve.

But though these nervous phenomena in all these cases have more or less the same fundamental character, they are grouped differently in different cases. In some the picture they present does not fit into the frame of any one group; and many cases show a mixture of psychical and nervous symptoms, and are, therefore, partly psychoses, partly neuroses. In many instances, we, besides, observe signs which clearly indicate a chronic, grave lesion of the central nervous system.

Dr. Oppenheim lays special stress on the importance of not considering simulation, when the group of symptoms is such as not to harmonize with our view of what it should be. So many psychical and nervous

anomalies are often observed in these cases, that we should long hesitate we ascribe to simulation what may after all be a grave lesion.

Concerning prognosis, Oppenheim has never yet seen a case of complete cure. Especially when the symptoms occur in an employé, who continues in the service of the company, the prospects of a cure are very small. In some cases the symptoms are in the beginning for a long time mild, and then assume a graver aspect, a point well to be remembered in the prognosis.

We do not take quite so hopeless a prognostic view as Oppenheim, especially if subsequent circumstances are favorable to rest and the restoration of the disturbed molecular equilibrium in the nerve centers. Nevertheless Oppenheim throws out a valuable hint with reference to the continued occupation of railroad employés damaged on trains. It would probably avert much ultimate mischief in these cases, both to the individual shaken up and to the railroad companies in the shape of damage suits averted, if employés, after violent accidents on moving trains, were transferred to lighter service in hospitals or offices, or shops, for a time, thereby avoiding, on solid ground service, the habitual daily shaking which the cerebro-spinal axis receives on trains in constant motion, a disturbance which, though well men may endure for a considerable time with impunity, ataxic and other nerve troubles do follow such service long-continued, but which a cerebro-spinal axis which has recently been subjected to the more or less severe concussion of a violent collision or other railroad accident, is not likely to sustain, without great danger of serious mischief following to the spinal cord or brain, and especially to the brain. It should always be remembered, in considering the possible nervous sequellæ of railroad accidents, that latent tendencies to nervous disorder exist in many people who travel on railways, as well as in those who do not, and that the psychical and physical shock of an accident may be sufficient to call into activity morbid molecular central nerve changes that might have continued dormant but for such shock, for the remainder of the victim's life, and it is equally worthy of remembrance that some of the most serious affections of the cord and brain—sclerosis for example—have slow and scarcely perceptible beginnings, and in this and other cerebro-spinal morbid aptitudes the hereditary tendency may be so marked as to break out into active manifestation on slight provocation, such as a simple wetting in a rain-storm, and the accident and the appearance of the nerv-

ous symptoms may be but little more than coincidences. Then there is that annoying element in so many calculations as to morbid etiology—latent syphilis—a disagreeable and perplexing factor, to be accepted or rejected in every attempt at sound conclusions. But with all the elements of doubt which may enter into our calculations as to the relationship of railway concussion, the Gordian knot of doubt is not cut by the too common surgical conclusion that the cause is not in the accident, if the cranium or vertebral column give no external and visible evidence of violence.

The best and truest of external and visible evidence is in the symptomatic signs which cannot be attributed to other and more probable causative influences.

Urethan, Paraldehyde and Chloral.—It is plain that the place of chloral as a hypnotic has not yet been perfectly filled. Its power in high states of cerebral excitement over urethan and paraldehyde, at least in safe doses, is still paramount, but both urethan and paraldehyde are most excellent alternates, permitting the perfect elimination of chloral after long use, from the blood, and allowing the therapeutically besieged psychical centers to partly recuperate from the powerful hold of chloral, while the physician may yet retain sufficient hold upon the aberrant cortex cells, by these alternate hypnotics, to maintain quasi physiological cerebral repose.

The doses of urethan given by Otto and Kœnig seem to us needlessly large, but certain chronic forms and stages of insanity and idiocy require larger doses than the less exhausted and impaired cortex sensibility to narcotic impression of other forms and of the non-insane.

It is not strange that irritable stomach and loss of appetite should follow the continued use of doses as large as from one to two and a half drachms, especially if not largely diluted.

Urethan, in our experience, has often proven an acceptable and efficient hypnotic, in fifteen-grain doses, given after the patient has retired to bed and after he has, during the day, taken a drachm or two of bromide of ammonium.

It is the most agreeable to the taste of all the hypnotics. In our hands it has proven highly valuable in the insomnia of melancholia and all morbid psychical states accompanied with sleeplessness and not associated

with high maniacal excitement. In the latter condition we have not sufficiently often substituted it for chloral and hyosciamin to fully decide upon its merits. We have learned enough of it, however, from practical observation, to esteem it worthy of a valuable place in neurotherapy and give it a favorite place in many conditions in our own therapeutic armamentarium train.

Urethan is likely to have a place in hypodermic medication.

Dujarden-Beaumetz, in a late article in the *Therapeutic Gazette* very favorably compares paraldehyde with chloral for internal use. He thinks it less irritating to stomach and pharynx than chloral. (He probably never gave chloral largely diluted in a viscid vehicle.) It is not a cardiac poison, he says, is not anodyne. He thinks it a better antidote to strychnia than chloral, and though he concedes its inferiority to chloral or morphia in painful affections, he considers it better in "nervous insomnias, and especially in those produced by the abuse of alcohol, paraldehyde is much superior to chloral, and he has many times seen, in his hospital service, the great benefit which may be derived from paraldehyde in the disorders arising from inebriety."

And in the various forms of mental alienation he quotes Dr. Keraval and Dr. Nerkam, who, in France, have made the greatest number of trials with it in maniacal diseases, who show that paraldehyde is an excellent hypnotic in certain forms of insomnia with restlessness, and which are so common in the course of cerebral affections, and have also noted good effects in the convulsive neuroses, and in particular in the epileptic crises and multiple manifestations of hysteria,* to which he adds that even in many cases of morphiomania he has been able to replace the morphine injections to which the patients were habituated, by paraldehyde, in the dose of three or four grammes (45 to 60 grs.) a day.

Chloral is superior to paraldehyde, in the fact that the latter drug sooner loses its effect on patients than the former.

His observations do not bear out the view. He has seen patients who for months have always obtained the same effects from the same doses, and cites, in illustration,

* Keraval et Nerkam, *Action hypnotique et sedative de la paraldehyde dans les différentes formes d'alienation mentale* (Soc. Medico-Psychol., Mai, 1884); Ferkam, *Thèse de Paris*, 1884.

the case of a Mexican affected with chronic icterus, who had, for more than a year, been in the habit of relying on a three-gramme dose of paraldehyde to get his sleep at night, and who never has been obliged to increase the dose; and it was the only agent which he found capable of safely combating the tormenting itching which deprived him of sleep, all other hypnotics having failed, in consequence of determining ill effects on the part of the liver or stomach. He thinks, then, that paraldehyde does not lose its remedial power as soon as has been represented, and among the hypnotics it is one of those that may be the longest continued with the least inconvenience.

It remains to be seen whether, after it shall have been as long tried and as much used as chloral, the superiority asserted for paraldehyde over chloral by this writer and clinician will be maintained. Until further and more convincing testimony, we shall still adhere to our old therapeutic friend, in combating the insomnic and convulsive neuroses.

Paraldehyde has also been given hypodermically and by enema. The hypodermic injections, however, have proven so painful as to contra-indicate their use. Dujarden-Beaumetz says this fact and the inflammations and abscesses which follow, should banish the method of administration from practice. The same objection holds good in regard to hypodermatics of chloral-hydrate.

Kéreal and Nerkam claim that paraldehyde is superior by enema to chloral, in the insane: but just why, we are not convinced.

The following is their formula for subcutaneous use:

Paraldehyde, 1 part;
Cherry-laurel water, 1 part;
Distilled water, 3 parts.

They inject a gramme (15 grains) of this solution, representing 20 centigrammes (3 grains) of paraldehyde. These injections are always safe, though painful.

And this is their formula for enemata:

Paraldehyde, 2 grammes (3ss);
Yolk of one egg;
Infusion of marshmallows, 120 grammes (℥iv). M.

The Insanity of the Bavarian King.—A singular skepticism pervades the minds of many physicians, who inexpert in psychiatry, respecting the correctness

of diagnoses made by experienced alienist physicians, of the obscurer and least demonstrative forms of mental derangement. They demand of psychiatry what they would regard as a preposterous exaction of neurology, surgery or ophthalmology—that the symptoms should be in accord with the most common and inexpert medical conceptions of what ought to constitute the insanity, according to their theoretical views of what mind irrational should be in its manifestations. Of what value to the profession, or to mankind, is special familiarity with the distinguishing features of psychical aberration in its obscurer forms, if the clinical student of psychiatry is not allowed to recognize mental disease, whose symptoms appear beyond the horizon of the ordinary and inexperienced observer? As well might the non-medical mind say this or that is not disease, which the clinician in general morbid phenomena, pronounces such, because, with his inexperienced vision, he sees nothing the matter with the patient that he cannot explain on some other and erroneous hypothesis of his own conception.

These general experts all have a different standard of sanity, varying in elasticity, but usually contracted to some form of familiar delusion connected with the special senses, to markedly deranged intelligence—inability to distinguish right from wrong; or flagrant acts of obscene or violent impropriety; self-destruction or murder. The nicer shades of morbid psychical symptomatology which disturb the harmonious relation of the mentally deranged to their environment, being imperceptible to these theoretical and self-constituted experts in psychiatry, are denied, or, if perceived they are explained on various hypotheses, and their perfect compatibility with sanity is maintained.

It is only the real expert who sees aright and knows the full meaning of the morbid aversions not manifest in stereotype delusions; the insane suspicions and vicious speech and deeds, having the semblance of sanity because susceptible of some possible explanation, but really without adequate rational motive or explanation in the individual.

Von Gudden found King Ludwig insane, and his colleagues confirmed the expert's diagnosis, but only the monarch's tragic death and the autopsy silenced the caviling objections to the conclusions of true psychiatric science, which were made from sources of inexperience,

where silent acquiescence would have been the part of wisdom and professional decorum. It would be a sad day for psychiatry if its conclusions generally should only be considered as worthy of credence when confirmed by a tragedy and autopsy or the concurrent judgment of a unanimous popular medical opinion, especially in this country, where there is so much of mediocrity in matters medical—where the voice of numbers counts for so much.

The late Bavarian monarch had auditory hallucinations which excited him to delusional speech and conduct. His morbid imaginings led him to singular improprieties of language and action, out of all rational harmony with his surroundings as a crowned monarch.

He cultivated an unkingly equality with the menials of his court, and would, at one time, if not circumvented, have placed his hairdresser at the head of a ministry of the latter's choosing.

Aside from these facts, and from the violent, irrational, causeless paroxysms of rage which he would indulge alike towards animate and inanimate objects; his folly about flying machines; his idolatrous worship of lifeless objects, and solitary grimacing and gesticulation, he had an insane love of solitude, and yielded to it when affairs of State demanded his attention; and a morbid aversion to the kind of society which it is the duty and interest of kings to cultivate, and which naturally belonged to his station and environment, and which, had he had a healthy appreciation of the normal harmony of king and kingdom, he would have cultivated and enjoyed, or having no taste for them, would have abdicated the place with the abdication of its duties and demands, instead of holding on to the crown while courting the company of menials over princes.

These, and his morbid and irrational aversion to those to whom the ties of State and consanguinity bound him; his unnatural attachments where there ought, in one in his station, to have been no strong affinities, his proposal to sell his kingdom without cause, and for a totally inadequate consideration and purpose; his irregular habits of eating; his negligent and uncleanly personal habits; the persistent pains in his head, and insomnia, make a plainly presumptive case of the insanity in a king who could think that the joy of his life would depart from him if he could not carry out a cherished project in regard to a certain building, at the expense of a kingdom lost—a

project insane on its face, because, without a kingdom, worthless and impracticable of execution.

The insanity of his life, and of this last project, are plain. The last act of suicide was not necessary to confirm it in the mind of any true student of mental derangement. Gudden's observation and word were alone sufficient. His conclusion, that the king was insane, should have been worth as much as that of the neurologist in regard to the existence of *petit mal* in a patient, even though many general practitioners would not recognize the true nature of this malady without the classical convulsion and unconsciousness were manifest.

The Autopsy Upon the Late King of Bavaria.—

Great interest attaches to the question of the alleged madness of the late King Louis of Bavaria. Many have hinted that his eccentricities were purposely exaggerated by those about him, and that he was not in reality insane. A leading English medical journal takes this view. The full report of the autopsy, which we give below, will, therefore, be read with close attention. It seems that on June 8, Prof. Von Gudden, Dr. Hagen, Prof. Grashey and Dr. Hubrich deposed, under oath (1) that King Louis was suffering from a well-advanced form of mental disturbance known to alienists as paranoia (*Verrucktheit*); (2) that this form of disease was one of gradual, progressive development, and was, in his Majesty's case, then incurable; (3) that through this disease the free-will of thinking was completely destroyed, and he was permanently incapacitated for governing. Such was the unanimous opinion of the physicians mentioned.

The *post-mortem* was made by Prof. Rudinger, in the presence of Prof. Grashey and Drs. Kerschensteiner, Halm, Hubrich and Ruckert. Marked changes of various forms and of a degenerative nature were found in the skull, brain and meninges. These changes were partly abnormal developments, partly chronic inflammation of old and recent date, and are described as follows:

The scalp was very thick and enormously vascular. The skull was disproportionately small and asymmetrical. For example, the diagonal diameter from the left brow to the right side of the occiput was 17.2 centimetres, while from the right brow to the left occiput it was 17.9 centimetres. The skull was extraordinarily thin, its thickest portion being only three millimetres. The coronal and sagittal sutures on the inner surface of the skull were completely ossified. The longitudinal sinus was too much dilated posteriorly and narrowed anteriorly. There were several large and small bony protuberances on both sides of the inner surface of the frontal bone. The dura mater was in general much thickened, especially over the frontal bone, where it was vascular and roughened. The left petrous bone showed a projection which corresponded to a depression in the temporal lobe. The tentorium was irregularly thickened, and on stretching appeared porous and friable. All the blood-vessels of the bone were filled with a dark fluid blood. The

brain, without the dura, weighed 1,349 gm., or about forty-three and a half ounces. The arachnoid on both convexities of the cerebrum was thickened and milky looking. At one place, about at the junction of the left first frontal and the ascending frontal, the pia and the arachnoid membranes had become thickened and raised by fibrous proliferation. The skull over this point was almost as thin as paper. In certain localities on both sides, the convolutions appeared shrunken, viz., at the beginning of all three of the frontal convolutions, the mesal parts of the anterior central convolutions, and in the region of the middle of the post-central fissure. The brain substance was vascular and soft. No microscopic examination has yet been made.

The account thus given apparently does reveal degenerative changes. Taken in connection with the personal and family history they place the insanity of the king beyond all reasonable doubt, and make it quite unnecessary to suppose that there was any dark conspiracy in connection with his tragic end.—*N. Y. Med. Rec.*

Yes, undoubtedly the late King of Bavaria was insane, and the autopsic and the combined *ante-mortem* testimony to his insanity was not more confirmatory of mental derangement than that given in the history of Guiteau. But there may be a difference between the insanity of a king and that of a regicide.

Classification of Mental Diseases, and the Antwerp International Committee.—The paper of Prof. Lefebvre, of Belgium, the proceedings of the Congress at Antwerp, and the letter of B. C. Ingels, M. D., to the American member of the Committee, have been forwarded to several of the learned and scientific bodies in the United States and Canada, and the attention of the American, Canadian and Mexican Governments called to the desire of the Belgian Society, that it requested the co-operation of these bodies and Governments to the work imposed upon the Committee by the Antwerp Congress.

The following gentlemen have already been named by the learned societies, as their representatives in the work up to the time of our going to press, leaving some yet to be heard from:

The Medico-Legal Society, of New York:—Dr. Pliny Earl, of Northampton, Mass.; Dr. Alice Bennett, of Norristown, Pa.; Dr. Chas. H. Hughes, editor *ALIENIST AND NEUROLOGIST*, St. Louis, Mo.

The National Association for the Protection of the the Insane and the Prevention of Insanity:—Dr. Chas K. Mills, of Philadelphia; Dr. Jno. C. Shaw, of Flatbush Asylum, N. Y.; Dr. C. L. Dana, of N. Y. City.

The American Association for the Cure of Inebriety:—Joseph Parrish, M. D., Burlington, N. J.; T. D. Crothers, M. D., Hartford, Conn.; Dr. Albert Day, Superintendent Washington Home, Boston, Mass.

The Society for Promoting the Welfare of the Insane:—Dr. Henry R. Stiles, New York City; Edward P. Wiley, Esq., New York City.

The Association of Medical Superintendents of American Institutions for the Insane:—Dr. Chas. H. Nichols, of Bloomingdale Asylum, N. Y.; Dr. Henry P. Stearns, Hartford Retreat for Insane, Hartford, Conn.

The Massachusetts Medico-Legal Society:—F. Winsor, M. D., President of that Society, Winchester, Mass.; Ira Russell, M. D., Superintendent Insane Hospital, Winchendon, Mass.

American Academy of Medicine:—Dr. E. W. Cushing, of Boston; Dr. A. D. Rockwell, of New York; Dr. P. V. Connor, Cincinnati, Ohio.

Medico-Chirurgical Association of Canada:—Dr. Henry Howard, Montreal; Dr. James Stewart, McGill University, Montreal.

New England Psychological Association:—Dr. J. P. Bancroft, Concord, N. H.; Dr. Wm. B. Goldsmith, Superintendent Butler Hospital, Providence, R. I.; Dr. Walter Channing, Brookline, Mass.

The Role of Electricity in Tabes.—One of our esteemed collaborators sends us the following:

Ziemssen, in the latest edition of his book on electricity in medicine, has, after an experience of thirty years, become a pessimist, contrary to the therapeutic optimism of the specialists. After this the high expectations from the healing powers of electricity will have to be toned down somewhat. This news will hardly affect the remunerative enthusiasm of some electricians, who will, as heretofore, cure tabes and other scleroses by drawing sparks two or more inches long from the astonished and credulous victims.

We may say in reference to the above that neither tabes nor any other grave affection of the central nervous system should be combated by electricity alone. It is not the machine or battery, but the medical judgment that directs the conjoint use of electricity and other remedial agencies, that may conquer these maladies; and the medical man who credits the machine alone with the cure, wrongs alike his profession and his patient.

But there remains no doubt in our mind, after long

experience and adequate confirmation in the comparative treatment of certain nervous affections with medicine alone and with conjoint medication and judicious electrization, that results were greatly in favor of the combined plan, especially in epilepsy, paralysis, neuralgia, and sclerosis in all of its forms. The appropriating power for the medicines administered is not only improved by judiciously selected and prudently administered electrizations, but avorable molecular changes have been undoubtedly established, from which absolute cures have followed in many of our cases where only such medicines had been used as had previously failed when given without the assistance of conjoint electrization. We have a record of results in our own experience in epilepsy, hemiplegia, and in one or two cases of paraplegia and tabes, sufficiently satisfactory to refute the skepticism of Ziemssen. Electricity, however, is not everything, and it is not the sparks of the static machine (with which we have had comparatively little experience) that does the most good. In fact two-inch sparks and their shocking effect is rather harmful in tabes than beneficial.

The roller, up and down the spine, especially in the dorso-lumbar area in tabes dorsalis, and to the legs, and the descending constant galvanic current to the head, in cerebral sclerosis, are decidedly beneficial. It is too late in the day of medical progress to ignore them, and it is extremely inconsistent to countenance manual or machinery massage to the extremities in tabes while discountenancing the molecular excitation of the static roller.

Interest in Medical Science by the Religious and Secular Papers.—It is quite significant of the expansion of the human mind commensurate with modern progress, that the secular journals and newspapers take so much note of real valuable medical matters. The *Globe-Democrat*, of this city, has for a long time past furnished its readers with some valuable medical matter of a substantially instructive sort, from the facile and competent pens of Drs. W. B. Hazard and W. A. James. And a late number of *The Christian Advocate* devoted nearly a quarter of a page to an article from this journal on melancholia, a phase of morbid psychology, of special interest and value, as a study, to the clergy.

IN MEMORIAM.

CATLETT.—Died at St. Joseph, Mo., Wednesday, May 19th, 1886, Geo. C. Catlett, M. D., Superintendent State Lunatic Asylum No. 2. In his death the State has lost another valuable medical officer, and alienism a faithful and capable physician.

Dr. Catlett has followed sooner than we thought he would, after the lamented Dr. Smith, of Fulton Asylum No. 1.

His last literary work was a touching tribute to the memory of Dr. Smith, who so shortly preceded him into the land of immortal life; and his address, as President of Missouri State Medical Association, a position to which the profession called him last year.

Dr. Catlett was a faithful, enthusiastic and capable medical superintendent, and leaves behind him a good and lasting record at St. Joseph, of his fidelity to his trust and interest in the welfare of the insane of the State. The first and only superintendent of the asylum at St. Joseph, from 1873 to the time of his death, he had grown with the institution, over which he so ably presided, in the confidence of the profession and people of the State. After the fire, which destroyed it a few years ago, he reconstructed it in a most satisfactory manner. The new buildings arose from their ashes, under his touch, better than they were before.

Dr. Catlett was in his fifty-eighth year at the time of his death. The direct cause of his death was cystitis and complications.

RESOLUTIONS ON THE DEATH OF JOHN W. SAWYER, M. D.—At the regular meeting of the New England Psychological Society, held at Boston, April 13th, 1886, the following resolutions were unanimously adopted:

WHEREAS, an all-wise Providence has removed, by death, Dr. John W. Sawyer, physician and superintendent of the Butler Hospital, Providence, R. I.

Resolved, That this society has sustained a great loss in the death of one who has been a highly esteemed member during all of its existence,

and that its members individually feel a deep sense of bereavement in being thus deprived of the presence of an associate whose personal qualities had endeared him to all, and desire to express their high appreciation of his moral worth, his undivided devotion to duty, and of the value to the insane, and to the community, of the life that has thus suddenly been brought to a close, when apparently in the meridian of its strength and capacity for usefulness.

Resolved, That a copy of these resolutions be sent to the family of the deceased member, and that they be published.

DRS. SAWYER AND WORTHINGTON.—The *Journal of Mental Science*, for April, pays the following well-merited tribute to the memories of Drs. Sawyer and Worthington:

DR. JOHN W. SAWYER.

Dr. Sawyer recently visited this country, and to those who became acquainted with him in connection with his inspection of asylums it will be a cause of great regret to learn that so soon after his return to America his life was cut short, and his useful career as Medical Superintendent of the Butler Hospital for the Insane, Providence, Rhode Island. He succeeded the celebrated Dr. Ray, in 1867. During the nearly twenty years which have elapsed since his appointment, he has discharged the duties of his office to the entire satisfaction of all concerned; and those who have visited this institution can bear witness to the proofs of his administrative capacity and the kindness of his heart. The trustees of the hospital speak the simple truth when they say that "his manners were gentle and winning; his character was marked by singular modesty, united with gentle firmness of purpose, by rare good judgment, by manly independence, by self-denying benevolence, by unfailing devotion to the duties he was called upon to perform. He has died at a moment the most unexpected, of which those who loved him had received no premonition, and when his plans were broadest and his hopes were highest, in the full meridian of his usefulness and his renown. The trustees mourn his loss, not alone as a loss of an accomplished and faithful superintendent, eminent in his profession and honored in the community, but also as the loss of a personal friend, endeared to them by the graces which adorned his character, and by the noble and generous services which filled his daily life."

Dr. Sawyer was born at Danvers, Mass., Nov. 5, 1834, and received his medical education at Hartford University, where he graduated as Doctor of Medicine in 1859. He filled the office of assistant-physician at the Butler Hospital for the first two years, under Dr. Ray. After practice in Boston for a short time, he became assistant-superintendent of the State Hospital for the Insane at Madison, Wisconsin, where he remained during the six years preceding his appointment at Providence. About ten days before his death Dr. Sawyer attended a maniacal case with a view of a removal to the Butler Hospital. The patient, a strong, athletic young man, clutched the doctor by the throat, and it required the policemen in attendance to drag him off. Although Dr.

Sawyer never mentioned the accident to his physician, there appears to be no doubt that it was the immediate cause of his death. The cellular tissue of the neck was infiltrated, involving the submaxillary glands, which had previously been somewhat enlarged. It became necessary to perform tracheotomy, but death followed a few minutes after the operation, Dec. 14, 1885, at the age of 51. His loss will be severely felt in the institution which he superintended, and by American alienists.

He has been succeeded in his office by Dr. Goldsmith, the late superintendent of the Hospital for the Insane at Danvers, who has many friends in Britain who will wish him success in the performance of the duties which have thus unexpectedly fallen to his share. Butler Hospital is once more fortunate in the possession of a wise and zealous medical superintendent.

DR. JOSHUA HUSBAND WORTHINGTON.

Another American physician has gone to his rest, not prematurely, as in the case of Dr. Sawyer, but at the age of 69. In 1842 Dr. Worthington, became resident physician of the Frankford Asylum near Philadelphia, conducted by the Society of Friends, and became its superintendent in 1850, an office which he filled until 1877, so that he was connected with the institution for 35 years. He was born in 1817, in Harford county, Maryland, and received his medical education at the Jefferson Medical College, graduating there as Doctor of Medicine in 1838, after which he practised his profession in his native place. Dr. Worthington "was a member of the Association of Medical Superintendents of American Institutions for the Insane and a prominent member of the American Medical Association, and was identified with all the important local and State Associations, serving as Vice-President of the State Medical Society, in 1859. He became distinguished in his treatment and studies of insanity and his contributions to the literature of the institution were liberal and valuable. In connection with Dr. Charles Evans, from 1843 to 1850, he published eight reports of the Frankford Asylum, and after that, for some years became their sole publishers." To this statement of the *American Journal of Insanity* (Jan., 1886,) it may be added that after his retirement he lived quietly at Baltimore, and at German Town, Philadelphia, where he died Dec. 27, 1885.

Dr. Worthington was one of the kindest of men, and was beloved by the patients under his charge. In his general views of asylum construction, and the provision for the various classes of the insane, he could hardly bring himself to approve of much that has been proposed or adopted during recent years. He was eminently conservative, and in a letter written to the writer shortly before his death he expressed his apprehension lest the movement largely carried forward by laymen, for the protection of the insane, in the States, would not prove disadvantageous, as well as advantageous, in the true interest of the insane, by prejudicing the public mind against institutions for the insane. Possibly he did not fully recognize the fact that all entrusted with the

guardianship of the insane do not possess the same kindness and consideration for their welfare as has characterized himself; and was, therefore, hardly aware of the danger of abuses in asylums unless constantly looked after by outsiders, although in many instances forming an incorrect judgment, and in some doing an injury to the class they desire to benefit. Be this, however, as it may, Dr. Worthington performed his own duties faithfully; and his memory will long be cherished, alike by his old patients and by his friends, both in England and America.

Our acquaintance with both doctors, Sawyer and Worthington, dates back to the year 1867, and knowing their great worth as physicians, having all the high qualifications of head and heart for the responsible positions they respectively filled, we deeply deplore their loss to psychiatry.

HOSPITAL NOTES.

A GOOD EXAMPLE.—President Cleveland's good example to the official benedicts of the land, is being emulated in the lunatic asylums. He did not take the "Kankakee route" in his bridal tour, but Dr. Richard Dewey, Superintendent of the Kankakee Asylum, has caught the matrimonial fever. It broke out on him on the 22d. He was "done up brown" on that day. This is the record:

MARRIED.—Mary E. Brown, to Dr. Richard Dewey, Tuesday, June 22d, 1886, at 10:30 a. m., Fourth Presbyterian Church, Chicago.

We acknowledge, with thanks, the invitation, and regret our inability to be present and personally congratulate the matrimonial mariners. We wish them *bon voyage*, with the minimum amount of *mal de mer, en route*, which presupposes fair sailing and unroughened seas. These good wishes ought to secure us a piece of the cake.

DR. E. P. STIMSON, formerly assistant physician to the Butler Hospital for the Insane, Providence, R. I., and more recently deputy superintendent of the Rhode Island State Asylum for the Insane, at Howard, R. I., succeeded Dr. G. P. True (resigned), as assistant superintendent at Osawatomie, Kansas, July 1st, 1885.

ERRATA.—On page 336 of April number, fourteenth line, read "John Curwen," instead of "Jas. G. Kiernan."

REVIEWS, BOOK NOTICES, &c.

TRAITE ELEMENTAIRE D'ANATOMIE MEDICALE DU SYSTEM NERVEUX
Par Ch. Féré, Médecin adjoint de la Salpêtrière. Chef des travaux anatomo-pathologique à la clinique des maladies du System Nerveux, vice-président de la Société Anatomique, membre de la Société d'Anthropologie, de la Société de Biologie, de la Société de la Psychologie Physiologique, de la Société Médico-Psychologique, etc.

This elementary treatise on the medical anatomy of the nervous system, by the distinguished author whose name appears above, is one of the most recent and most valuable books issued by the "Medical Progress" publication bureau.

The author is too well known to the savants and litterateurs in neuropathology and biology to require commendation from us.

His previous contributions have introduced him to all students of the anatomy, physiology and pathology of the nervous system. The active membership which he holds in so many distinguished societies, and his fellowship in the Pathological Society of London, have already introduced him to most of our readers.

The book now before us is materially different from Bramwell's late work, presenting coarser views of the nervous system and its relation to pathological states. The plates are far inferior in style of execution, and otherwise not comparable to Golgi. Gower's, as well as Bramwell's recent contributions, are far superior in their plates. In fact, one of the chief faults to be found with "Le Progrès Médical" publications is the roughness and cheapness of their illustrations. Still, they answer the purpose, though a little more pains in the clearness and detail of their execution would make them more pleasing to the eye and instructive to the student. The book too, is too loosely put together and poorly bound by the publisher, and this is a provocation, because a book by Féré cannot well be dispensed with.

The author pays a high tribute to foreign authorities, in the large number of familiar illustrations, copied from Meynert, Hugenin, Erb, Fleischig, Richer, Wilcker, Sappay, Pagenstecher; and many of Charcot, Pitres, Duret, Brissaud, Broca and Boyers' cuts are brought again to our notice, to refresh our memories. The author, however, gives due credit for all borrowed illustrations, and discusses his subjects clearly enough, but there is too little novelty in the book to justify so many pages.

The discussion of spinal cord compression is a good chapter, and the accompanying illustration, on page 249, of une tumeur compriment la moitié gauche de la moelle et ayant déterminé une hémiparaplegie, is a good one, but that is also "*après M. Charcot.*"

THE NEUROLOGICAL REVIEW. Volume 1, Number 1, edited by J. S. Jewell, M. D., Chicago.

This publication, issued monthly, is on our table, with the following table of contents:

I. Original and Selected Articles.

1. Clinical Contributions to the Treatment of Epilepsy. By DR. J. S. JEWELL.
2. Paranoia: its influence in increasing the number of the insane. By J. G. KIERNAN, M. D.

II. Editorial Department.

VULPIAN: Vaso-motors in trunk of trigeminus.—Urethan.—BABINSKI: Curious case of descending degeneration in spinal cord, followed by atrophy of muscles.—VOISIN: Hypnotism as a remedy in mental affections.—Absinthine.—WAGNER: On a peculiar sputum in hysteria.—MARAGLIANO: Kairin in typhus abdominalis.—Hernia cerebri, a peculiar mode of treatment.—Katatonia.—CHITTICK: Large doses of cerium oxalate.—DOLERIS and BUTTE: Researches on eclampsia.—DUMAS: On aconitine.—PRITZL: Hypnotism, instead of anæsthetics, in childbirth.—MACKENZIE: Hay-fever as a psycho-neurosis.—SHARKEY: Gulstonian lectures on spasms in chronic nerve disease.—Salicylate of lithine in acute rheumatism.—Cold affusions in acute rheumatism.—Cerebral tumors, exhibition in London.—CROTHERS: Inebriate hospitals in the United States.—ABBOTT: Ammonia in acute catarrh.—MORGAN: Electricity to quicken healing in nerve suture.—STADELMAN: Soda bicarb. in diabetes mellitus.—MURRELL: Treatment of infantile paralysis.—WILKS: Syphilis as a cause of tabes dorsalis.—DUJARDIN-BEAUMETZ: On ethoxycaffeine.—*Journal of Nervous and Mental Diseases*.—DUJARDIN-BEAUMETZ and BARDET: On hopein.—DUJARDIN-BEAUMETZ: Bromide of ethyl for producing local anæsthesia.—CLOUSTON: Decrease of general paresis.—Therapeutical laboratories.—Local boards of trustees, and insane hospital management.—HARE: Action of tobacco. [Many editorial items have been omitted from this list.]

III. Review Department.

1. Aberrant Manifestations of the Sexual Appetite. Dr. Med. B. Tarnowsky, St. Petersburg.
2. Report of an Investigation of the Cook County Insane Hospital by the State Board of Charities.
3. Nature and Curative Treatment of Angina Pectoris. Dr. H. Huchard, Paris.
4. Case of Hysteric Coxalgia, of Traumatic Origin, in the Male. Dr. J. M. Charcot. ("Progres Medical.")—Faith Healing of Tumors.—Neurotic Affinity for the Neurotic.—Insanity Cured by Tupelo Tent, Utero-Cervical Dilatation.—Oxaluria and Melancholia.—Insanity from Ophthalmic Operations.—Hyosine Hydrobromide in Insanity.

A MANUAL OF DIFFERENTIAL DIAGNOSES. By Coridict W. Cutler, M. S., M. D., Physician to the New York Dispensary, etc.

The appearance of this book in this form is timely. Its value is chiefly for students and physicians of limited experience, but will serve a useful purpose for older physicians in active practice. The disease and similar

conditions from which it is to be differentiated are placed in juxtaposition on the same page, and so displayed as to strike the eye and fix the attention of the reader. It is a good reference book to set the machinery of thought and differential diagnosis in active and fruitful motion in the mind. Some of the distinctive differences are far too nicely drawn; but such a book could only, from the difficult nature of the subject, be approxinatively accurate. The author, however, has done his work with sufficient accuracy to merit professional approbation and to be of service to the profession. It ought to afford valuable hints to lecturers on clinical medicine and supplant the place of notes of symptoms, when time in which to prepare them is scarce, as it is with most busy practitioners, who also fill these chairs in medical colleges.

HOMŒOPATHY; as viewed by a member of the Massachusetts Medical Society. An address delivered April 15, 1886, before the Hahnemann Society of the Boston University School of Medicine. By Vincent Y. Bowditch, A. B., M. D. (Harv.), President of the Boylston Medical Society of the Harvard Medical School, 1884-5.

This publication sets forth the regular view of certain questions propounded by the Hahnemannian Society of the Boston University School of Medicine. Most of the questions are answered very well, but the fact is that most medicines, especially such as act on the principle of *similia*, do so mainly by reason of their affinity for the part affected and the maintenance or excitation of molecular activities incompatible with the persistence of disease. Some medicines reach a presiding center, and stop all morbid action; some set up a decidedly contrary action, some make a somewhat similar impression. But whatever the impression of the medicine, it is at variance with and antagonistic to the molecular activity which sustains the disease, *i. e.*, if a cure follows the medical impression, and *contraria contrariis* is the more general term of therapeutic action, even for remedies which appear to act on the principle of *similia similibus curantur morbi*.

THE NEW YORK MEDICAL MONTHLY. Conducted by Dr. J. Leonard Corning.

It gives us pleasure to give countenance and encouragement to journals conducted with enthusiasm, by earnest medical men, whose motive is something more than the business of a publisher; men who seek not only the prosperity of their journal as a medical medium, but who give evidence of a desire and earnest determination to advance themselves in science. The country is full of journals conducted by publishers and by medical men, who are merely assistant publishers, who work mainly for the publishers, and never themselves reach beyond medical mediocrity.

A medical editor should grow with the rapidly advancing progress of medical science, and wield, each year of his editorial stewardship, a wiser and better pen, for the benefit and honor of the profession.

This, we believe, Dr. J. Leonard Corning and the *New York Medical Monthly* will do, and we hail and welcome him and his new and promising enterprise with all good wishes.

RECHERCHES CLINIQUES ET THERAPEUTIQUES SUR L'ÉPILEPSIE, L'HYS-
TERIE ET L'IDIOTIE.—Compte Rendu du Service des Epileptiques et
des Enfants Idiots et Arriérés de Bicêtre Pendant L'Année, 1884, par
Bourneville, Médecine de Bicêtre, Budor, Dubarry et Leflaive, Inter-
nes du Service, et P. Bricon, Docteur en Médecine. Volume V avec
onze figures, cinq planches et un plan.

We have received and examined, with much pleasure and profit, this
and the preceding volume for 1884.

We regret that we have not been permitted the pleasure of reading
the three first volumes of these valuable researches by the distinguished
authors. We can, from what we have thus far been permitted to examine of
these valuable volumes on epilepsy, hysteria and idiocy (subjects always
interesting to the medical philosopher, clinician, and even the therapist),
cheerfully commend them to the thoughtful and investigating student of
neuropathological problems.

"THE REVIEW."—In the April number of the ALIENIST, we gave our
readers a commendatory notice of this new enterprise in medical journal-
ism. It now only remains for us to state the object of *The Review*, as
set forth by its editor, in the first number before us. In establishing *The
Review*, Dr. Jewell says it was the intention of the editor that it should
occupy distinctively the clinical field of neurology, using this latter term
in its widest, deepest sense. Its chief aim is, therefore, to gather and dis-
cuss facts, cases, groups of cases, morbid conditions; including theoretical
and practical therapeutics. This aim, of course, makes it necessary to look
backward to the causes of nerve and mental disease, to consider the rela-
tions between symptoms and lesions. In the discussions that arise, it is, of
course, expected to refer to every domain belonging to the anatomy and
physiology of the nervous system, whether healthy or morbid. While
The Review is practical, it is to be truly scientific in spirit. It is also
intended that this periodical shall embrace a full, free, and readable review
of the whole field of neurological literature, so far as its limits make this
possible. The editor feels it to be his duty to say to his readers that the
present issue of *The Review* falls far below his ideal. Subsequent
numbers will come nearer and nearer that ideal, both as to matter and
form.

The Review has our congratulations on the promising appearance
of the initial number, and our best wishes for a successful career.

"PROGRESS" is the chosen name of a new monthly journal for students
and practitioners of medicine, edited by Dudley S. Reynolds, M. D., and
published by D. W. Raymond, Nos. 235 and 237 Third Avenue, Louisville,
Ky. It is announced that "Progress" will be of double column form, forty-eight
pages, the first number bearing date July, 1886. Arrangements
have been made for Original Articles, Clinical Lectures, Observations in
Private Practice, Society Reports, News Items, Etc., and the editor pledges
his best efforts to make the work an embodiment of the most advanced
Progress in everything pertaining to legitimate medical research.

Dr. Reynolds is Professor of General Pathology, Hygiene, and
Diseases of the Eye and Ear, Hospital College of Medicine, of Louisville,

and a veteran medical journalist, who will make, in the future, as in the past, a journal valuable to the profession.

MEDICINE OF THE FUTURE, is the title of the address prepared by the late Dr. Austin Flint, Sr., delivered by its lamented author before the British Medical Association. But "Man proposes and God disposes." Dr. Flint, Jr., son of the deceased savant in clinical medicine, has put in print, and reverently dedicated his honored father's last literary work, to the profession he so loved and adorned.

This brochure is accompanied with an excellent frontispiece photo-engraved, of the late distinguished president of the American Medical Association.

The past and present progress of medicine are so pleasingly presented, and the future of medicine so naturally forecast in this essay, that, aside from its being a memorial memento of one so much esteemed, our readers will be pleased to have the little book in their library, and thank the son for the last sad task he has performed in putting this address in print. May the memory of Austin Flint, Sr., never perish in our hearts.

THE EIGHTH EDITION OF HAMMOND'S TREATISE ON THE DISEASES OF THE NERVOUS SYSTEM.—We have nothing to add in further commendation of this work. Its style and contents fully maintain for it the high place it early secured in the literature of Neurology, and the appearance of the present (eighth) edition fully attests its general appreciation by the profession. The book is especially creditable to American neurology, and the author refers with acknowledgment of "great gratification" to the fact that, during the fifteen years the "Treatise" has been before the profession, it has continued to receive approval, both at home and abroad, to an extent beyond that ever given to any other work of like scope and objects, published in any part of the world. The book has been thoroughly revised, and a section on some obscure diseases of the nervous system has been added.

The author does not make as liberal an acknowledgment of the contributions of his co-laborers in the field of neurology, as we should like to see in so distinctive an American work.

THE MEDICAL ANNUAL AND PRACTITIONERS' INDEX is a record and review of the year's progress in Medicine, Surgery and General Science, and a work of reference for medical practitioners which, though designed especially for English physicians, is nevertheless full of useful information for the physicians and surgeons of this country, especially such as are going abroad this year. It is published by Henry Kingston, of London, Eng., the well-known book publisher, under the editorial management of Dr. Percy Wilde. The editorial committee consists of such names well known to the profession of this country as Drs. David Drummond, Milner, Fothergill, Lawson, Tait, and many others.

THE NEW YORK MEDICAL MONTHLY.—This is the title of a new journal, the first issue of which, dated May, 1886, has reached us. It contains eight

large double-columned pages of reading matter, including contributed articles by Dr. Fessenden, N. Otis, Dr. George Henry Fox, Dr. C. R. Agnew, and Dr. Henry Schweig, besides a number of editorials, society proceedings, and abstracts. The "Monthly" is edited by our esteemed contributor, Dr. J. Leonard Corning, and is published by De Leeuw, Oppenheimer & Myers. The first number presents an attractive appearance, and the contents are interesting and sufficiently diversified. We heartily join the *New York Medical Journal* in wishing the new journal the most abundant success.

PARALYSIS FROM PERIPHERAL LESIONS, is the title given to a recent duodecimo volume, issued by the publishing house of James A. Churchill, London, made up of the lectures of Thomas Buzzard, M. D., London, delivered at the Harveian Society. The size of the book is one hundred and forty-two pages, in large, clear type, in which the subject of paralysis from peripheral neuritis and of gouty, alcoholic and diphtheritic origin, are discussed in the author's usual clear and attractive style. The author's experience as physician to the National Hospital for the Paralyzed and Epileptic, entitle these lectures to general professional confidence, and as worthy of such, we commend them.

THE RELATION OF THE STATE AND THE MEDICAL PROFESSION.—An address delivered June 30th, 1886, before the Alumni Association of the Department of Medicine and Surgery of the University of Michigan, by Charles J. Lundy, A. M., M. D., President of the Medical Alumni Association, University of Michigan; President of the Detroit Medical and Library Association; Professor of Diseases of the Eye, Ear and Throat in the Detroit College of Medicine, etc., etc., etc.

ON THE ADMISSION OF IDIOTIC AND IMBECILE CHILDREN INTO LUNATIC ASYLUMS. By William W. Ireland, M. D., Preston Lodge, Prestonpans. (Read to the Branch meeting of the Medico-Psychological Association, at Carlisle, 8th April, 1886.)

THE
ALIENIST & NEUROLOGIST.

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ORIGINAL CONTRIBUTIONS.

On the Relation Between Law and
Medicine, with Especial Reference
to the Medical Jurisprudence of In-
sanity.*

By EDWARD C. MANN, M. D., Brooklyn, N. Y.,

Superintendent Sunny-Side Home for Nervous Invalids, 204 Leffert's Place, Brooklyn,
N. Y.; Member New York County Medical Society, etc.

THE chief practical issues coming within the range of
this theme, which are to be decided by medical
witnesses, are,

1. Questions of mental soundness or insanity, as
affecting questions of responsibility in criminal cases, and
2. The capacity to make a will or to manage one's
affairs.

Our object in this work is to present, as concisely as
possible, the application of mental medicine to the pur-
poses of the law. The numerous cases of real or alleged
insanity depend, for their final settlement, mainly if not
exclusively, upon medical testimony.

The rôle of the physician is to point out to the judge
and jury that which is disease and that which is not.
The whole study of medical jurisprudence is of the great-
est practical value both to the lawyer and the physician.

* Advance sheet of "Mann's Medical Jurisprudence of Insanity."

If, in cases determining the validity of a will, or the responsibility of a homicide, the judge and jury were not enlightened by medical testimony, so that law might keep pace with medicine, monstrous wrongs and flagrant injustice would be inflicted in almost every case.

The medical expert, to have his opinions of value, should be a man who has mastered the complex and subtle study of the mental and psychological functions; he should be a man who thoroughly studies each case that is presented to him by the lawyer; he should, to be of value in any given case, be a man, who on the witness stand, maintains a calm and dignified composure as a witness, and one who cannot be betrayed into heated rejoinders to counsel, and who does not allow his temper to become ruffled. A medical expert should be summoned on the supposition that he is master of the science of legal medicine. If he is, he will, in his testimony, be neither evasive nor ambiguous, and he will avoid, as far as possible, the use of all technical words or phrases; neither the Court, counsel or the jury can possibly understand technical and scientific language, such as would be appropriate in an address before a medical society. Affectation and pedantry are out of place on the witness stand.

The testimony of experts is necessary for the purpose of arriving at truth in certain medico-legal investigations. Such testimony, viz., that of skilled witnesses, is essential to a due observation and appreciation of facts. Such testimony can only deserve its name and fulfill its function when the witness is really skilled, *i. e.*, when he possesses those qualities of mind, that education of habits and those stores of information, which alone can make him a competent observer. It is because medical witnesses have often been unskillful in the particular directions in which their evidence has been taken, that so much discrepancy has occurred in their statements. Scientific testimony does not fail in the matter of facts, because it is too minute, too cautious or too true,—rather because it is *wanting* in carefulness, precision and minuteness.

The physician's province is to point out the distinction between permissible variations within the range of health, and those departures from the common order of life, which are inconsistent with the idea of mental health.

To a physician skilled in psychiatry, nothing appears more absurd, and nothing could possibly be more in conflict with the laws which govern mental disease, than the New York code, which lays down, that if a man knew the consequences of his conduct, and the difference between right and wrong, he must be held legally responsible for crime; yet it happens very often that the insane are well informed upon these points, and that sane men are not. The sense of a difference between right and wrong, in the general or the abstract, is one of the characteristics of human mental constitution. It may differ in intensity, in keenness, and in force of influence upon conduct. It, however, exists as an essential part of our nature, and in some form or another is present in the most degraded of our species. The application however of this sense to particular acts is as variable as are the conditions of human life, and is the product of all kinds of influences—the climate, hereditary, educational and social. If the sense of right and wrong be destroyed, the individual is less than man; if the sense exists, but its application be erroneous, the individual may be insane, but he may be simply ignorant or prejudiced. It is a part of our nature to recognize the distinction in the abstract; it is not a part of our nature to determine its particular applications. I have repeatedly seen the insane, not only with a very keen conscience, but actually unhappy with the sense of their responsibility, while sane men are often met with who are not troubled in either of these particulars. The sense is not necessarily absent in the lunatic; its presence is not a proof of sanity.

The great question in criminal trials, is, whether a man was capable of avoiding the compulsion of disease to crime? Could he help it? Lord Chief Justice Cockburn, of England, and Sir James Fitzjames Stephens, in his

"Criminal Law," have taken the broad and liberal ground that where there is loss of self-control, caused by insanity, there is irresponsibility. In Stephens' "Criminal Law," 1883, Vol. II., page 130, we find the following, viz., "Sanity exists when the brain and the nervous system are in such a condition that the mental functions of feeling and knowing, emotion and willing, can be performed in their regular and usual manner. Insanity means a state in which one or more of the above-named functions is performed in an abnormal manner, or not performed at all, by reason of some disease of the brain or nervous system." This is the most liberal definition that ever emanated from the bench, and such a liberal and progressive spirit is very gratifying to see.

Another very important point, and one which Justice Stephens evidently understands, is this: Morbid states of the *emotions* derange the mind, and we not unfrequently see the emotional or affective power of the mind markedly affected while the reasoning powers remain unaffected. There is to-day a decided tendency on the part of the progressive men of the legal profession, to alter the existing laws, to keep pace with increasing knowledge, while, we regret to say, there is another class of men who have so much professional conservatism that they oppose the law of insanity being brought into reasonable agreement with the knowledge of insanity possessed by physicians.

A strict enforcement of the law will hang many innocent persons.

The more progressive judges, all recognize, and from their experience on the bench *know*, that there are forms of mental disease in which, though the patient is quite aware that he is about to do wrong, the will becomes overpowered by the force of the impulse of the mental disease. This is true of very many of the suicidal cases.

A lady whom I saw in consultation a few years ago, who was a case of suicidal melancholia, told me that she "knew it was wrong to attempt self-destruction; knew that

she should be punished hereafter; that the thought of it made her very unhappy, as she realized her responsibility; but she couldn't help the feelings which impelled her to take her own life, or the impulse to do it." Although we cautioned the friends to keep a trained nurse with this patient, and impressed the fact of the insanity of the patient, upon the mind of the friends, she eluded their vigilance finally, and took her own life. In such a case, will any lawyer deny that the power of self-control was destroyed by mental disease, and that this was an essential element in the question of responsibility? Suppose homicide instead of suicide had been the result of the mental disease, would that have altered the fact of the loss of the power of self-control being an essential element in the question of responsibility?

If when the law speaks of a person laboring under such a defect of reason as not to know the nature and quality of the act he was doing, etc., it means us to understand *a calm judgment of the circumstances and consequences of the act*, then the judges should so construe it in their charge to the jury, in every criminal case where insanity is alleged by the defense, and counsel for the defense, should always request that the judge should so construe the proposition.

If in any case where emotional insanity proper, or reasoning mania, is the type of mental disease which forms the defense, and the District Attorney, or the judge, in his charge to the jury, take the ground that the effect of insanity, if any, upon the emotions and the will is not to be taken into account in deciding whether an act done by an insane man did or did not amount to an offense, the counsel for the defence should take the ground, that the proposition that the effect of disease upon the emotions and the will can never, under any circumstances, affect the criminality of the acts of persons so afflicted, is false to every medical truth, and is bad law.

Any law is insufficient and bad which lays down

propositions diametrically opposed to science or to medical books of recognized authority. The law of America should be as Sir James Fitzjames Stephens has proposed for England, that *no act is a crime if the person who does it is, at the time when it is done, prevented, either by defective mental power or by any disease affecting his mind, from controlling his own conduct, unless the absence of the power of control has been produced by his own default*; or as Dr. Bucknill, of England, has suggested as a simplification of Sir James Stephens' bill, "no act is a crime if the person who does it is at the time incapable of not doing it by reason of idiocy or of disease affecting his mind." This is a very needful amendment to our law relating to insanity, and should be in operation in every State of the Union. It is the law, practically, in Pennsylvania. From my experience in medico legal trials, I consider that there is a pressing need in cases where the insane prisoner has no friends and no means, for an amendment to our code, which should place rich and poor on the same footing, by providing for an official examination, by mental experts of high standing, into the prisoner's mental state before the trial. If good examiners were appointed much good would accrue; if incompetent men, the gain to legal medicine would be very problematical. There would be nothing to prevent counsel from calling in the aid of any other experts that they wished, on any given trial; and it would give the friendless insane the services of skilled physicians, who would be remunerated by the county for their services in each case.

We have seen the necessity for expert or scientific evidence. We have also seen that medical testimony may fail of its legitimate effect sometimes if it is incomplete and inaccurate; or on the other hand, if it is complete, accurate and definite, it may pass beyond the established lines of legal precedent. Our judges are generally men of great attainments, keen appreciation and wonderful habitual fairness. Both judge and jury must

often, we should think, be bewildered by the burden of deciding between experts. Their duty, when called upon to weigh expert opinions, is not an enviable one, and they are placed in a very delicate position.

The province of the medical expert in any given case, is to represent to the counsel engaging him, the true scientific value of the fact the latter has to deal with. If a medical man be true in his allegiance to science and to his profession he will never stultify himself in court, and his opinions will soon be regarded alike by Court, jury and counsel, as reliable and valuable, as he voices science, instead of appearing as a mere partisan witness.

Honest, unbiased, scientific testimony of an expert, who is assumed to be a scientific man in his chosen specialty, is conducive at once to the good of the individual, the honor of our profession and the cause of truth.

We would insist upon the importance of the study of medical jurisprudence being pursued by both legal students in the law schools and by medical students in the medical colleges, under competent professors.

Medically, insanity is a disease of the body, affecting the mind, by deranging its faculties, and causing such suspension or impairment of the healthy intellect, the emotions or the will, as to render an individual irresponsible.

It might also be defined as a diseased state of mind, due to ill health, accompanied by more or less absence of self-control, and impairment, in a marked degree, of the intellect, the emotions or the will; and showing itself psychically by depression, exaltation or mental weakness, and by disorders of sensation, perception or conception. We regard the former as the better medico-legal definition of the two.

When a criminal case is presented to the lawyer, if mental disease be suspected, a physician is consulted, to examine the prisoner, give his opinion to the counsel, and if favorable to the latter's view of the case, to testify as to the prisoner's irresponsibility. These expert witnesses should form their judgments with the greatest care, and

then express themselves in the plainest terms. We cannot overestimate the importance of having clear ideas and of expressing them clearly ; if the expert witness does this, he will be successful. Want of accuracy of thought and of distinctness of expression mars many an expert's opinions given in court. It should be the duty of the expert to examine the prisoner sufficiently often, to thoroughly satisfy himself as to the existence of mental disease. The case for the defense may be considered especially strong when the insanity of the prisoner can be proved to be hereditary, when there have been previous attacks, or when epilepsy is present. In the case of "*The People vs. Nelly Vanderhoof*," recently tried by Counselor Bailey of New York, the defendant was charged with killing her newly-born babe. Careful examination into the circumstances of the case revealed the fact, that the prisoner had suffered from epilepsy from birth ; that the family were saturated with the disease. Nelly Vanderhoof was a young unmarried woman, suffering from the strong moral shock of seduction and desertion, and the irritable condition of the nervous system produced by epilepsy ; she also had, when we first saw her, a considerable degree of uterine derangement. When the writer examined her at the Tombs, she had apparently no realizing sense of the enormity of her crime, and the mental tone had become very obviously impaired as the result of epilepsy. After investigating her mental condition, we reported to her counsel that she was, in our opinion, irresponsible, and that epilepsy was the phase of mental disturbance that prompted the criminal act. During her past life, she had been many times under the dominion of that blind fury, so frequently exhibited by epileptics immediately before or after a fit. Her mind was generally so impaired that she was seemingly incapable of controlling the feeblest impulses of passion ; she was laboring under a disease which almost invariably impairs the mind ; she had a sister demented, as a result of the same disease, a resident of one of the New York institutions for the insane ; her father was a

case of dipsomania; her mother had twice attempted suicide; such was the prisoner's mental condition and her family history. The trial took place before Judge Van Brunt, in the Supreme Court, New York City, April 9th and 10th, 1885. The people were represented by Assistant District Attorney Fellows, who, in trying this case, deserved great credit for his enlightened and humane views respecting the exculpatory effects of this disease. The prisoner was acquitted, the jury rendering a verdict of "Not guilty," on the ground of insanity. Judge Van Brunt delivered a very fair, impartial charge, acknowledging the exculpatory effects of epilepsy.

LEGAL RELATIONS OF EPILEPSY.—Not unfrequently the criminal lawyer will become engaged in cases in which epilepsy is the phase of mental disturbance that prompts the criminal act. Upon careful investigation he will generally be able to find epilepsy or insanity existing either in the parents or grandparents of the prisoner. Epilepsy is sufficient alone to produce complete irresponsibility. The mental powers become impaired as the result of epilepsy, and epileptics have the irritable condition of the nervous system produced by this disease. Such persons are prone to be under the dominion of that blind fury generated by the disease, both before, after and between the fits. The mind of epileptics is often so impaired that they are seemingly incapable of controlling the feeblest impulses of passion. Epileptics labor under a disease which *almost invariably* impairs the mind. The brain and nervous system of these persons is apt to be in such a condition that the mental functions of *feeling* and *knowing*, *emotion* and *willing*, are not performed in their regular and usual manner. One or more of the above-named functions is performed in an abnormal manner, or not performed at all. The outbursts of maniacal fury and destruction and homicidal impulses of epileptics are peculiar, in that the duration of the morbid state is short and its cessation sudden. There is no well-educated physician in any

country who does not know that the disease of epilepsy produces a modified responsibility in all the subjects of said disease. In a large number of cases, the actual or comparative sanity of patients for considerable intervals of time; the freedom from irascibility, passion or violence when removed from circumstances calculated to irritate, render it difficult to place such persons under restraint until an overt act has been committed which necessitates sequestration.

Very often the character of the mental disturbance, the paroxysmal gust of passion, the blind fury without an adequate cause, indicate the presence of epileptic insanity, and take the place of epileptic fits. Masked epilepsy is indicated by eccentric acts or a sudden paroxysm of violence without a distinct epileptic seizure.

Unmistakable epileptic fits occur at one period of a patient's life, while at another, maniacal symptoms take their place. When mental symptoms appear to take the place of a fit, there is a transitory epileptic paroxysm. All acts soon after epileptic fits are automatic, and the patient is irresponsible.

Elaborate and complex actions may be performed while a patient is unconscious. In different cases there are different degrees of recollection. As in other forms of insanity there may be a motive mixed up with an insane condition.

There may be motive and calculation in some cases, which, in some rare cases, control the misdeeds of epileptics. It is certain that the victim of a disease which takes away from him all control over himself, even when he remains capable of distinguishing between good and evil, cannot be held responsible for acts which he accomplishes without will, and in an automatic, and therefore unconscious manner. There is no epilepsy without unconsciousness. Epileptic seizures vary in severity from a simple vertigo, scarcely discernible by others, to the most violent convulsive fit, lasting from five minutes to some hours. Anger, fright,

or any strong moral emotion, is very liable to produce a paroxysm. Epilepsy tends almost invariably to destroy the natural soundness of mind. A direct, though temporary effect of the epileptic fit, is to leave the mind in a morbidly irritable condition, in which the slightest provocation will derange it entirely. This was precisely the state in which Lucille Yseult Dudley was in when she shot O'Donovan Rossa. She had, within a few days, had nineteen epileptic fits, and the provocation was the news which arrived from London, of the dynamite outrage, of which she imagined Rossa to be the direct instigator. Her criminal act was the result of the morbid irritability which succeeded the epileptic paroxysm. In epileptics, it is not uncommon to observe attacks of mania which are often characterized by a high degree of blind fury and ferocity. During the attack the patient is unconscious, so that his acts, whatever may be their nature, cannot make him liable to legal punishment. The passionate impulse to kill, in masked epilepsy, is substituted for ordinary epileptic convulsions. Instead of a convulsion of muscles, the patient is seized with a convulsion of ideas. An epileptic convulsion may not occur, but may be represented by sadness, dejection, by sullenness, by ebullitions of rage and ferocity, a *mania transitoria*, signalized by suicide, homicide and every modification of blind and destructive impulse. The awakening from epileptic stupor may often resolve itself into an outburst of mental derangement, manifested by extreme vehemence, violence and destructiveness. A crime resulting from epileptic psychical phenomena may be accomplished with comparative deliberation, and, as we have before remarked, there may be a motive mixed up with an insane condition. All epileptics are impressionable and excitable, and epileptic attacks are often replaced by irresistible homicidal tendencies.

A patient may recognize his impulses as illegal, but irresistible. In epilepsy, dreamy, mental states and imperative acts appear and disappear with great suddenness.

If an epileptic who is a prisoner, having committed some overt act, has premeditated the act, that does not prove that the said prisoner was not insane, or that he could control his insane desire. On the contrary it might be a still stronger proof of his insanity, that under the circumstances in which he was placed, he would do an act from the fearful consequences of which it would be impossible for him to escape. Every day there are examples in insane asylums of insane persons committing crimes, that they have premeditated. Premeditation is no proof of a prisoner's sanity. Epileptics who commit overt acts are very frequently indeed not in a condition to realize the nature and quality of the act they are doing, or to know that the act is wrong. Homicide or assault, with intent to kill, is not criminal, in our opinion, if the person by whom it is committed is, at the time when he commits it, prevented by any disease affecting his mind, from controlling his own conduct. If any person, at the time of committing an overt act, is suffering from incapacitating weakness or derangement of mind, produced by disease, then they are insane and irresponsible. It is very seldom that such facts cannot be elicited if they are present, and trials to-day are seldom unfair. Of course there are painful exceptions, where public prejudice virtually tries and decides a case, but this seldom occurs.

It should be distinctly understood that it is a scientific fact that if an epileptic or a maniac, subject to delusions, conceives a desire to murder, that he will be as incapable of resisting that desire as he has already proved himself incapable of resisting, either his fits or his delusions. Delusions of the insane defy the evidence of their own senses, the efforts of their reason, the testimony of their sane neighbors and the remonstrances of their friends; and their impulses always have, and always will, prove just as irresistible, when confronted with their knowledge of the distinction between right and wrong and the remonstrances of their consciences. Men-

tal disease does not deprive a man necessarily of the knowledge and consciousness of the law. It is inhuman, unscientific and diametrically opposed to every known psychological law, to only hold the insane man irresponsible for his act if his mind can be shown to be so unconscious of right and wrong that he is incapable of appreciating the law and its requirements.

The law to-day, in New York State at least, insists upon a test of insanity which every physician of experience, or whose opinions are of any value respecting insanity, says it is impossible to apply.

The jury take their oaths that they will try a given case fairly and impartially, upon the evidence; that they can do it without bias or prejudice on account of any opinion which they have formed; that they will try the given criminal case without being affected or influenced on account of any circumstances which surround the criminal transaction; that they will try the case according to the sworn testimony of the witnesses, and that they have no opinion of the law which shall govern said case. It is rarely, that in a great case, that each of the gentlemen, before entering the jury box, has not read accounts of the affair, from which he has formed some impression in reference to the criminal transaction. Before, however, they enter the jury box, they have to state on their oath, that they believe they can lay aside their previously formed opinion, that they can enter the jury box, listen to the evidence, and determine the facts anew, according to law and the evidence, without being influenced by any previously formed opinion. This duty devolves upon each jurymen, and it is a duty he owes to the public, to the prisoner, and to his own conscience. The jury should not, on going to the jury['] room, enter into any hasty or passionate discussion of the questions involved, but coolly and calmly reason one with another, to the end, if possible, that they may bring their minds to a common conclusion, and in so doing, determine the right in any and every case.

The law in New York, bearing upon the question of insanity, is as follows: "*A person is not excused from criminal liability as an idiot, lunatic, imbecile or insane person, or of unsound mind, except upon proof, that at the time of committing the alleged criminal act, he was laboring under such a defect of reason as either not to know the nature and quality of the act he was doing or not to know that the act was wrong.*"

Medically speaking the law errs in making the test of responsibility the capacity of the person to distinguish between right and wrong at the time of and in respect to the act complained of.

The question, according to the present defective law, is, Was the prisoner, at the time of committing an overt act, in such a state of mind as to know that the deed was unlawful and morally wrong? If he was, then he is responsible. If he was not, then he is not responsible.

The law bearing upon the question of insanity should be codified and amended, and the question should be, Was the prisoner's brain and nervous system in such a condition that the mental functions of feeling and knowing, emotion and willing, could be performed in their regular and usual manner? Was the man capable of avoiding the compulsion of disease to crime? Could he help it? Was the prisoner prevented, either by defective mental power or by any disease affecting his mind, from controlling his own conduct? The law should take the broad and liberal ground that where there is loss of self-control, caused by insanity, there is irresponsibility. When this is done, then, and only then, will the law of insanity be brought into reasonable agreement with the knowledge possessed by physicians.

Every case is to be judged, not by any ordinary standard, but by the change in the person himself. Everyone, therefore, becomes the measure of himself, and we are to inquire what the individual was, and what he has become, through disordered conditions of the brain. A medico-legal point of great importance, which cannot be too

strongly insisted upon by lawyers in every criminal case where insanity is alleged, is this: that the instability of nerve element implied in heredity, has a positive influence and is a definite power. It is an important point to bring out in some cases, that a man may be in a condition bordering on insanity and by exciting causes be drifted over to the insanity side.

On the question of change of character in a person accused of overt acts, and whose insanity is alleged, I would call the attention of the legal profession to the statement in Bucknill's "Essay on Lunacy," page 33: "A change, therefore, with impairment or perturbation of function is the chief test of cerebro-mental disease. It may take the same direction as the original character; and persons naturally timid or daring, cautious or reckless, generous or selfish, may have their natural bias of mind quickly developed in excess; or the change may reverse the character, and the patient may exhibit a striking contrast to his former self, or may take some strange direction which no one could guess at beforehand. Nothing can appear more wayward and uncertain than the direction which insanity takes in its development." That the insane act from motives, as the sane do, and that they are moved by fear, revenge, hatred and jealousy, is well illustrated in the case of Renshaw, who, entertaining a feeling of bitterness against Dr. Gray, Superintendent of the Insane Asylum at Utica, armed himself with four pistols, several pounds of cartridges and a bowie-knife, put on his feet rubber boots, that he might make no noise, and stole noiselessly along the hall to Dr. Gray's office, deliberately discharged his pistol at the doctor's head, the ball penetrating his face, and turned and fled. In a short time he went voluntarily to the jail and delivered himself up. The possession or sight of a deadly weapon often suggests to the insane the commission of an act of violence.

In every case which the lawyer tries, where insanity is alleged as a defense for crime, the attorney should,

particularly in New York State, request the judge to instruct the jury, in the language of Chief Justice Perley, of New Hampshire, in case of *State vs. Pike*, when he said, "*that if the killing was the offspring or product of mental disease in the defendant, the verdict should be 'Not guilty, by reason of insanity.'*" If the judge refuses to so charge, let the attorney take an exception, and the Court of Error, and Appeals, would always decide that such a proposition was good law, and the law of the State, no matter what the exact language of the code is. The Court of Error, and Appeals, in New York State, have not the courage to stand up against this proposition and say that it is not law, and good law, in this and every other State, and would reverse any decision which denied to so instruct a jury.

The lawyer should be equally instructed with the physician, as to what sort of an examination his client, if insanity is advanced as a plea in a criminal case, should have, in order that the fact of mental unsoundness may be elicited, if it exists. There are what physicians call premonitory symptoms of mental unsoundness. There is altered health, altered or perverted sensations, in some cases loss of muscular power, sleeplessness very frequently, excessive irritability, alterations of temper, excitability, tendency to laugh or cry, suspiciousness without adequate cause, unreasonable likes and dislikes, sometimes intense egotism, loss of memory, confusion of ideas, inability to think, write or speak connectedly, alteration in manner of speaking, and other changes in the intellect, emotions or behavior.

RULES FOR THE EXAMINATION OF PERSONS SUPPOSED TO BE OF UNSOUND MIND.—Every lawyer of experience knows that in medico-legal trials the physician who is to examine a person in whose defense the plea of insanity is to interpose, cannot be too careful in his examination. He should make a written examination, and should, when

he gets home, make a copy of it, for the lawyer who is to defend the case.

First. He should observe the general appearance and the shape of the head; the complexion and expression of countenance; the conformation of the body; the gait and movements, and the speech.

Second. Ascertain the state of the general health, of the appetite and digestion, of the bowels, of the tongue, skin and pulse. Note especially the presence or absence of febrile symptoms, as an important aid in distinguishing delirium from madness. Ascertain whether there is sadness or excitement, restlessness or stillness, and whether the sleep is sound and continuous or disturbed and broken. In females, the state of the menstrual functions should be inquired into.

Third. The family history should be traced out, in order to ascertain whether there is any hereditary predisposition to insanity, whether any members of the family have been subject to fits or have betrayed marked eccentricity of behavior.

Fourth. The personal history should be ascertained with equal care. If the mind appears unsound, ascertain whether the unsoundness dates from birth, or from infancy, or from what time. If the unsoundness has supervened later in life, whether it followed any severe bodily illness, accident, mental shock, long-continued anxiety of mind, repeated epileptic fits, or course of inebriety.

Fifth. Inquire whether the present state of mind differs materially from that which existed when it was reported to be sound; and whether the feelings, affections and domestic habits have undergone any marked change.

Sixth. Ascertain whether the existing unsoundness is a first attack, and if so, whether it began with depression or excitement. Did it follow a period of melancholy, pass into mania, and then into slow convalescence? Has the patient suffered from epilepsy? If any signs of general paralysis are present in the speech or gait? Has

the patient squandered his money, grown restless and wandered about, exposed his person, committed petty thefts, or had illusions of wealth or grandeur?

Seventh. If the physician desires to test the capacity of the mind, it must be tested by conversation directed to such matters as age, birthplace, profession or occupation of parents, number of brothers or sisters and near relations; common events, remote and recent; the year, the month or the day of the week; the name of the municipal Mayor, the Governor of the State, and the President; and of persons best known and talked about. The power of performing simple operations in arithmetic, and the knowledge of the value of money, should be tested, and the power of repeating simple forms of words in general use, such as the "Lord's Prayer," etc. In testing the power of attention, merely negative or affirmative answers to leading questions, should be distinguished from such replies as indicate judgment and reflection. If the inquiry relate, not to the capacity of the mind, but to its soundness in other respects, delusions should be sought for by conversation directed to those topics that are most likely to interest and excite the mind. The state of the moral feelings will be tested by conversation directed to relatives and friends. In cases of moral insanity, diligent inquiry should be made into the motives which might have led to the commission of the act of which the party was accused.

Eighth. The physician should insist in full opportunity being given him of forming his opinion. He should not usually content himself with a single visit. In cases of great difficulty, he should insist that the party be placed for some time under his observation.

Ninth. When undergoing examination on court, the medical witness is recommended generally to avoid definitions of insanity, on the plea that mental, like bodily diseases can be described better than defined.

Respecting some special forms of mental alienation, we desire to express the decided opinion that kleptomania, erotomania, pyromania, dipsomania, and suicidal and homi-

cidal mania, are all distinct varieties of insanity. Kleptomania is most common in women, placed by their wealth beyond the reach of vulgar temptation. Cases of theft are also often met with in epileptics; they care not what the value of the article is. Erotomania is an example of one of the strong impulses of our nature that is sometimes placed, by morbid excitement, beyond the restraint of reason and conscience. Pyromania is most frequent in young girls subject to menstrual disturbances. Dipsomania is a well-recognized form of mental unsoundness, and we would strongly maintain the necessary dependence of suicide on insanity. The majority of cases of homicidal mania, in our experience, has been among women, and is the result of grief, anxiety from uterine disease, at the menstrual period, at the climactic period and often at delivery, especially when complicated with seduction and desertion. Women at these times are in a peculiarly nervous state, not unfrequently, I am led to believe, accompanied by impulses to crime, and we do not consider them as responsible for overt acts committed at such times, especially when an overt act is opposed to the whole previous character of the woman.

We are liable to misunderstand the acts, not only of the ordinary lunatic, but also of the criminal insane, unless we have a few points in mind.

Certain Hereditary and Psychological Phenomena in Inebriety.*

By T. D. CROTHERS, M. D., Hartford, Conn.,

Superintendent of Walnut Lodge.

I PROPOSE to group some general facts, which, like a preliminary survey in a new country, may become landmarks for other and more accurate studies.

Some years ago I examined two inmates of the Deaf and Dumb Asylum, at Hartford, who from birth had distinct symptoms of acute intoxication. Both were boys, aged nine and thirteen, and walked with a staggering gait and great muscular incoördination. One had a demented grin, and nodded continuously whenever he saw anyone looking at him. The other had a dull, vacant stare and congested, bleary-eyed appearance. He was very irritable, and sensitive to observation, trembling with anger from any little cause. These and many other signs of intoxication were present, and had been noted from birth. The parents of both were inebriates. These cases aroused my attention, and since then I have gathered many notes and histories of similar cases.

Greatly to my surprise I have found that these cases were not uncommon, especially in asylums and hospitals, and also in active life. Many of them are not so marked, and others require some peculiar conditions or circumstances to bring out these symptoms.

The history of the cases I have obtained may be divided into two classes—one in which the symptoms of intoxication are present all the time; the other, in which these symptoms only appear from some peculiar circumstances or exciting causes.

In the first class, some prominent defect, such as

* A paper read before the American Association for the Cure of Inebriates, at New York, May, 1886.

idiocy, imbecility and congenital deformity, is present, giving the case a distinctness irrespective of the signs of intoxication. Hence, these symptoms of drunkenness are not separate from other defects in observation. Thus, in a prominent family, one of the children, an imbecile, had all the suspicious hesitancy of manner, also the walk of a drunkard.

In a private school for the feeble-minded, from the wealthier classes, three in fourteen cases had these unmistakable symptoms, which had not attracted attention.

In the home of a former patient I found a little girl, an idiot, whose voice and rambling utterance, with intensely red eyes and drunken expression, pointed back to causes and conditions that had not been noticed before. Other defects and deformities of the face and body cover up these peculiar signs of intoxication.

These symptoms may appear after birth, or be slowly evolved with the growth of the child, coming into prominence at or before puberty.

Of course, all the varied phases of idiocy, imbecility, progressive degeneration and malformation go on. The presence of a special class of symptoms, resembling intoxication so clearly, suggests a distinct alcoholic causation. In the second class I have noted, the alcoholic symptoms are not present, unless from some exciting cause (non-alcoholic), such as anger, fear, sudden excitement, etc. In this class are idiots, imbeciles and defectives of all degrees, who at times display distinct signs of intoxication, which subside after a period. Often in these cases appear the common delusions and deliriums of intoxication: also, the semi-paralysis and stupor. Teachers and superintendents of asylums and schools for this class realize clearly, the danger of excitement on these demented and defectives, throwing them into various states of mania, as well as intoxication. In one instance, a boy, an imbecile, would, if he was watched sharply, become agitated, and fall into a state of intoxication. If he became excited from any cause, the same symptoms would follow.

In another case, an imbecile from his birth, appears intoxicated when he first meets you, but quickly recovers himself, and all these symptoms pass away. The embarrassment of meeting strangers develops these signs of intoxication. The history of such cases uniformly point to inebriate ancestors. The common explanation of these symptoms is, that this pathological state reflects the condition of one or both parents at the time of conception, or some profound antenatal impression. To support this view, the history of the parents gives evidence, and also, in some cases, the peculiar form of intoxication in the parent is seen in the children. Thus, in one case the father, when intoxicated, had a delirium of agitation, in which he moved about incessantly: two idiot children born to him, both showed signs of intoxication and had muscular agitation and delirium.

In another case, a woman, when intoxicated, manifested hysterical fear of dogs: she had an imbecile child, which almost went into convulsions at the sight of a dog, and had all the symptoms of intoxication. Numerous instances are on record, of profound impressions on the mother's mind leaving a similar impression on the offspring. In one instance, an exceedingly nervous lady was greatly frightened by an intoxicated soldier; she gave birth to a boy that had all the signs of intoxication. He lived until twelve years of age, was an imbecile, and had all the marks of a person perpetually intoxicated; he staggered and would scream out from time to time, without cause or reason. Another case is reported, where the mother saw her husband stupidly intoxicated for the first time, and gave birth to an imbecile boy, who was stupid and acted as his father did, when poisoned with spirits. It is often difficult to trace these peculiar symptoms, which resemble intoxication, to a similar state in one or both parents at the time of conception; but in most cases, the probability of such a state is greatly strengthened by general circumstances and various marks of alcoholic defects and deformities. I find myself forced to conclude, that

these symptoms are inherited as special pathological states, representing the parents at the time of conception. Why they do not occur in all cases is not clear, but the fact is beyond question, that children of inebriates bear marks of defective organization of almost infinite degree, form and variety.

Beyond this range of cases there is another class, less common, yet with a distinct history and symptoms. Unlike the first class, they are persons who have average brain-power, and in many instances are men of genius and positive force, with a peculiar nerve organization. They are usually temperate men, never using alcohol, yet under certain circumstances, and from some particular excitement, act and appear as if fully intoxicated.

In these cases some form of mental shock takes place, destroying the normal balance, and bringing uppermost an inherited neurotic defect. In some instances alcohol cannot be tolerated without producing nausea, vomiting and extreme depression; and yet, from some unknown cause, purely mental, they will suddenly exhibit all the usual signs of intoxication, which pass off as quickly as they came on.

These cases come from inebriate parents or moderate drinkers, and have inherited some defective nerve organization which manifests itself in this way. I have collected a number of these cases, and grouped them under two heads—one of inherited toxic states, and the other of acquired toxic states. In the first class the notes and histories I have gathered will serve as an outline for more exhaustive studies, and they also suggest many new fields of psychological heredity not yet explored. The following are histories of some of these cases:

FIRST CASE.—Joseph B——, a farmer of fifty-four, temperate, a man of character and wealth, who had never used any kind of spirits, suffered from a violent shock and alarm from a runaway horse. He was thrown out of the wagon, and only slightly bruised, but could not walk after. His face was red, his voice jerking and husky, and

his language silly, and he staggered, with every appearance of a drunken man. He recovered, but was thought to have used spirits. Some months after, at the funeral of his child, all these and other marked symptoms of intoxication returned, to the great mortification of his friends and family. A year later another similar attack occurred from the burning of some outbuildings on his farm. A careful inquiry made it clear that he had not used any spirits, although he had all the signs except an alcoholic breath. His father was an excessive user of spirits, and his mother died of consumption, but could never tolerate the smell or taste of alcohol. He has been gradually becoming weaker for some years, and is now an imbecile.

SECOND CASE.—The treasurer of a large manufactory, temperate but very nervous, and a hard-working man, of forty-eight, suddenly appeared intoxicated when accused by the president of falsifying the books. He was unable to talk rationally, and both appeared and walked like one who had drank large quantities of spirits. The next day he recovered, and fully explained, to the satisfaction of all. He was ill for a week, with some general debility and indigestion, then went to his duties, became angry, and had a similar paroxysm. A short time after another attack came on at his house, and the physician called it congestion of the brain. In all these instances no evidence of having taken any spirits could be obtained. His father was a sailor, and drank freely.

THIRD CASE—A merchant of fifty-eight years, lost all his property in a series of unfortunate speculations. He was much depressed, and went to live with his brother-in-law, a physician. He had been a temperate man, from principle, and was in good health up to his failure in business. One day, on the receipt of a letter with bad news, concerning some business matters, he became, to all appearance, intoxicated. His brother-in-law, the physician, made a careful examination of all the facts and surroundings, and concluded this was a case of what he called

mind intoxication, or drunkenness, from causes other than alcohol or drugs. A few weeks later a similar occurrence followed an exciting interview with a creditor. During the two years which preceded his death, three distinct attacks were noted, each one lasting from two to six hours. He died suddenly, from pneumonia. His ancestors were both moderate and excessive drinkers.

FOURTH CASE.—A recent one. A merchant, in good health, and temperate, while at work in his counting-room, received a dispatch of the death of his daughter. He laid down on a sofa in his office, and very soon became wildly intoxicated. A physician made this diagnosis, although there was no odor of alcohol on the breath. He was taken home, and remained in bed a week. Two opinions prevailed; one, that he had drank in his office; the other, that it was congestion of the brain. He denied having used spirits, but was confused about the events of the past. In this case a similar heredity from alcoholic ancestors was present.

These cases are sufficient to illustrate the clinical fact I am attempting to demonstrate. I am informed, by good authority, that during the late war many similar cases were noted, and were the subject of much comment and speculation. Thus, men who were total abstainers, would, under the excitement of the battle-field, exhibit the wild frenzy of a drunken man, or be stupid and largely unconscious of the surroundings. As an illustration, a noted officer at Antietam, came riding back from the "front," swaying in his saddle, and shouting parts of songs, in a marked drunken state.

He was a total abstainer and had not drank any spirits, but had been at the "front" for hours, under great excitement, having a horse shot under him. His conduct was so strange and wild, that he was ordered back, under the impression that he was intoxicated. Different surgeons noted this strange frenzied state, on many occasions, but in the excitement and change of battle, could not ascertain whether it came from the use of

spirits or from some mental state. On many occasions it was clear that by no possible ordinary means could spirits be obtained, and yet men, previously temperate, seemed fully intoxicated. When the battle was over and a degree of relaxation took place, many men would exhibit childish excitement and delirious irritability, identical with alcoholic intoxication. At other times, after a period of prolonged strain and excitement, when coffee was given freely, the same inexplicable symptoms of intoxication would appear, and be termed "coffee drunk." When these symptoms appeared at the "front" under fire, they were termed "*battle drunks*." Some facts very similar have been noticed in the navy, in the case of gunners, who, after a short time of exciting work, would become like drunken men, and be obliged to go to their berths. This condition has been noticed in persons who were shocked or greatly alarmed at the time of great disasters. A railroad superintendent informed me that on two occasions he had noticed instances of the apparent intoxication of railroad men, who seemed to be at fault through an accident. The intoxication came on after the accident, but from a most careful inquiry, he was convinced that they had not used any spirits then or ever, and that their condition was unaccountable.

An incident was related to me by a gentleman, who had been talking quietly in the cars with another man, when they were thrown down a steep embankment. The car side was broken in, and both were thrown out, only a little bruised. In a few moments one was fully intoxicated; the other, the narrator, could not understand this state, or explain it in any way. From these and other statements which I have gathered, I conclude that these cases are not unfrequent, but from want of accurate observation and the difficulty of obtaining the facts, they are overlooked. As far as it could be determined, I think that every case had a prominent substratum of direct heredity from inebriate ancestors. In the partial history of some of these cases, some form of brain exhaustion

was present, and the shock, or paralysis, brought to light the special pathological symptoms of alcoholic poisoning. It would be foolish to deny that this was a special nerve and brain defect transmitted from the parents, and only came to light from the action of some particular cause.

In the case of a total abstainer, who, during some state of excitement, manifested all the symptoms of intoxication, where beyond doubt he had not used any form of alcohol, and where inebriety existed in the ancestors, it would be a most reasonable conclusion to infer an origin in heredity, which burst into activity in obedience to some unknown exciting cause. From this point many and varied questions start up, which future observations and studies alone can determine. I think these cases are of the same class as idiots and imbeciles, with special symptoms of alcoholic poisoning, as a direct heredity from the parents; any difference being simply in the fact that these special pathological defects are dormant, but only appear from the action of some peculiar cause. This seemingly represents the conditions of the parents at the time of conception or some antenatal impression. The second class of acquired toxic states have less of mystery, and are more common. They are of the class of men who have been inebriates or intoxicated, and have become total abstainers, but from the same unknown causes suddenly manifest all the old signs of intoxication. Some factor of heredity is present, and possibly some nerve tracks, along which abnormal energy has been very active in the past, may come into prominence again. An outline of some cases will bring out these facts:

FIRST CASE.—The superintendent of a factory, a man who had been temperate and sober for fifteen years, his conduct and character, beyond all reproach, was engaged to be married, under circumstances of great promise. The day of the wedding the bride received a letter, warning her against him, saying that he was a secret drinker and a bad man otherwise. This she sent to him

by the hand of her brother. After reading it, he showed all the signs of intoxication, and went to bed. The wedding was postponed, and he afterwards asserted so positively his innocence, that I was called to give an opinion. An examination indicated that this was some condition of shock, or sudden congestion, in which symptoms of intoxication appeared; also his assertion of not having drunk was literally true. A history of moderate and excessive drinking was noted in his parents.

SECOND CASE.—A clergyman, with a marked history of heredity. He was under my care for five months, when one day, a brother clergyman paid him a visit, and no doubt talked very severely to him of the sin of drinking. I found him a short time after, in bed, with all the symptoms of intoxication. He had a childish, idiotic expression, and was in a semi-delirious state. He remained in bed two days, and had all the appearance of one who had suffered from alcoholic poisoning. This was the first pronounced case I had seen, and could not be mistaken. The sudden emotional excitement precipitated him into the pathological state of intoxication.

THIRD CASE.—This case was sent to me for an opinion, as follows:

A noted temperance lecturer, formerly an inebriate, for ten years or more had been an abstainer. One evening while lecturing, he was given a dispatch from his wife, announcing the fatal illness of a child. He drank a glass of water, and attempted an explanation to the audience, became confused, staggered and acted like a man rapidly becoming intoxicated. He was finally led from the stage, and laughed and shouted in a maudlin way. The audience supposed that he was drunk, but all the circumstances showed clearly, that no spirits had been taken.

These cases are most strikingly confirmed in many ways, and especially in circles of temperance reformers. One man of my acquaintance, after an eloquent lecture of an hour, during which he most dramatically portrays the conduct and manner of an inebriate, will go to his

room and be practically intoxicated for some time, or until he can procure a few hours sleep. This man has been an inebriate, but for the past five years has been lecturing on inebriety, with great power and skill. He has been in the St. John campaign, and lectured for months incessantly. These phases of drunkenness are called "queer spells" by his friends, and are guarded from observation. When the lecture is over, he retires at once to his room, and will not be seen until next morning. In another case a man of talent and genius of a high order, who had drank to great excess for ten years, stopped and became a lecturer. He told me that often the impulse to drink was so strong that he could only resist it by having an audience and opportunity to talk or plead for temperance. He was really intoxicated in his extravagant enthusiasm and dramatic portrayals of the evils of drink. After the lecture was over, he was greatly exhausted and had all the feelings of one who had just suffered from intoxication. The psychological student will find a rare field of study in the temperance meetings of the day, particularly where they are conducted and addressed by reformed inebriates.

These facts are along the line of every day's observation, and are sustained by many collateral evidences. Beyond this are still further ranges of facts, on the same psychological field, less common and more obscure.

A pathological state has been observed, which I call unconscious imitative inebriety, where persons, from the influence or contagion of the surroundings or some unknown factor, are, to all intents and purposes, intoxicated. Here, as elsewhere, a strong substratum of heredity exists. I present the notes of two cases which were sent me, by accurate and very competent observers. One, J. H., was a lawyer, a delicate, nervous man, employed in the State Department, where a monotonous, exact range of duties had been performed for many years. He was unable to use spirits from the headache it produced. Although his father was an inebriate, he never could or would drink

any form of alcohol. He was a society man, and spent his evenings at the club. For several years past it was noticed that after an hour or more spent in company of men who were drinking to intoxication, he would take on their condition, and like them, become intoxicated. He would be with them hilarious or stupid, and use only coffee moderately, while the others drank wine. Sometimes these states would go so far as to make him stupid and unable to walk, and he would need the assistance of a guide and carriage to get home. The next morning he would have a headache. These occasions were at first infrequent, then grew more common, until at present he cannot remain an hour in the company of any friend who is intoxicated, without appearing and acting like them. He is called by his friends, the "Coffee Drunkard," for this reason. He will be as stupid as any of them, and yet use nothing but coffee. He would fall into this state more slowly if strangers were present, and sometimes not at all, depending on some internal force, that prevented him from giving way. He affirmed that the sensation was very pleasant, and he did not realize his own condition, but was always conscious of enjoyment, until the party broke up and he went home, when a feeling of misery and disgust came over him. The physician who examined him in these states, considered that he was a perfect barometer of the mental surroundings, and that after a certain point he gave himself up to a species of mesmeric influence, making him do anything the others did.

SECOND CASE.—A wealthy farmer and strong temperance man, was elected to Congress. He formed a strong attachment for a hard drinking man in the same body, and after being in his company for a few hours, would walk and talk like him. He would talk foolish, and stagger, and act identically like him; but if called away, he soon recovered and was as before, yet, in his company he used no spirits, and only occasionally soda. This imitation intoxication grew on him, and he seemed to fall

into this state in any drinking party where several were intoxicated. He was not aware of his hilarity or stupidity in drinking company, and only remembered that he could not use spirits. He was reported to be intoxicated in the papers, and could with great difficulty make any defence. He is still in office, but has learned to keep away from all drinking men and State dinners where wine and intoxicated and hilarious drinkers are present. A hereditary taint of both insanity and inebriety was present in his case. I have made another group of these cases, that brings out some facts seen in other circles of life.

They are cases of reformed men, who show signs of intoxication from the contagion of others who are intoxicants. The following is an example:

A prominent military man, who had drank moderately during the war, and had abstained from that time on, while attending a dinner with his old comrades, where most of them were intoxicated, suddenly became hilarious, made a foolish speech and settled back in his chair in a drunken state, and was finally taken home quite stupid. He had not drank any spirits, and had only used coffee and water, and yet he had all the symptoms of the others, only his was intoxication from contagion: the favoring soil had been prepared long ago in the army. Another case was that of a man who had been an inebriate years ago, but had reformed. He was recently elected to office and gave a dinner to some friends. Among them was a physician, who has been greatly interested in these studies. He sent me a long report, the substance of which was this: On the occasion referred to, many of the company became partially intoxicated, and the host, who drank nothing but water, became hilarious, and finally stupid with them. He was put to bed, with every sign of intoxication, but recovered, and next morning had only a confused notion of these events. The third case occurred four years ago. A reformed man, of twelve years' sobriety, went on a military excursion with a drinking company, and although he drank nothing but

lemonade, became as much intoxicated as the others. This event was the subject of much comment and loss to him, socially and otherwise, although he protested, and others confirmed his statements, that he did not take any spirits at this time.

In these cases, as in the others mentioned, two conditions were present—one in which some special unknown nerve state was inherited, which readily reflected alcoholic states from contagions; the other, in which this particular alcoholic state had been acquired, and more readily responded to contagious surroundings than otherwise. In both cases, undoubtedly, heredity was present, but in the latter some previous pathological state existed. What form of brain and nerve defect, and what circumstances and conditions combined to develop this special pathological state must be determined in the future. Along this line are many psychological facts of great interest, that throw light on other mental states. Thus, actors, who essay to represent insanity or inebriety, are successful in proportion as they inherit a nervous organization predisposing them to these affections. A single glass of spirits may awaken a latent nerve defect, and soon after merge into inebriety. So the effort to imitate the manner and conduct of an intoxicated person may give impress and direction to an organism that will be permanent.

An actor, greatly praised for his skill in "Hamlet," was obliged to leave the stage, for the reason that this character was becoming so intimately his, as to suggest insanity at an early day. A man who acted the part of a drunken man was, after a time, so completely intoxicated as to be unfit for his part. He could not use spirits, and had to give up this part of the play, for the same reason as mentioned above. A remarkable incident came to my notice along this line. A temperance writer, of great power and vividness of detail, said that he lived all the details of the hero he was describing, in his own mind. When the character was intoxicated, he had all the symptoms, and had to go to bed after writing that

the hero did so. He suffered, was exhausted, had pain, mental agony, was joyous, happy, contented, and lived over every event which he described. This man was strictly temperate, but had a drunken father, from whom he inherited a peculiar nervous organization, that gave him power to realize the toxic state from alcohol, and throw himself into it more perfectly.

He says that it would impair his health to write more on this theme, for he would be intoxicated most of the time while writing. Many of these states may be termed emotional trance states, and in some future time will be the subject of some very curious and wonderful psychological discoveries. Those who observe inebriates carefully, find them literally encyclopedias of psychological fact, that cannot be understood by any present knowledge of the subject. For instance, reformed men or those who have recently stopped the use of spirits, cannot safely listen to a recital of the sufferings and struggles of others to become temperate, without taking on some form of mental shock that is fatal to their own resolutions. The more vivid and accurate the struggles of a drunkard are described, the more certainly the will of the hearer is weakened and rendered impotent to help itself. Temperance lecturers, who hope, by painting the horrors of drink so vividly, to deter anyone in the audience from falling in that way, are deceived, and produce the very effect they seek to remedy.

In the same way, the sight of an intoxicated man, produces a dangerous form of excitement in the mind of the reformer, and if this should last some time, it would react in the same condition. I have embodied many of these curious facts in a paper, with the title of "Mental Contagion in Inebriety," published in the *ALIENIST AND NEUROLOGIST* of October, 1884. In this brief glance of the subject, I have endeavored to bring out the fact, that states of intoxication are found in inebriates and defectives that are positive inheritances from parents. The organism has received a positive, permanent impression,

from which it never recovers. Also that this pathological state of acute poisoning from alcohol may be covered up by other defects, and only come out from the application of some peculiar exciting cause. I have called attention to a class of cases, who from some exciting cause suddenly become intoxicated to all appearance, although they have not used spirits. An inherited predisposition to this form of defect, from inebriate ancestors, is present in these cases. Also a class of men who have been total abstainers for a long time, who, under similar conditions of excitement, appear intoxicated.

I have described a class of cases, where the intoxication was purely from mental contagion, appearing in persons who have previously drank, but were temperate at this time. Undoubtedly, conditions of heredity, unknown at present, control and govern this condition. It will be clear from this outline-grouping of facts: 1st, that symptoms of alcoholic poisoning cannot be trusted as evidence of the immediate use of alcohol; 2nd, that *the excessive use of alcohol* leaves a permanent defect or impress on the brain, which will go down into the future with great certainty. It may be concealed for a lifetime in the child of a drinking parent, but at any moment may come to the surface, from the application of its special exciting cause; or it may appear in some other form of defect, that can be traced back to the injury from the toxic action of alcohol. In brief, the range of facts that open up from this point are truly bewildering, and their discovery and the laws which govern them, is the great future realm for investigation.

This is the field into which specialists press forward with increasing enthusiasm, confident that behind all this mystery of drink-craving will be found a majestic order of forces coming from unknown causes, moving in unknown orbits and about unknown centers; also, with equal confidence, that not far away, inebriety and its evils will be understood, treated and prevented, as positively as any other disease.

School Training of the Insane.

"Between the art of educating the young and of managing the insane there is a close analogy."—*Pinel*.

By JAS. G. KIERNAN, M. D., Chicago.,

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MUCH that was taught in earlier American psychiatry seems to have been forgotten. The doctrines of paranoia, of moral insanity now becoming dominant, are claimed as new discoveries, but are to be found embedded in the teachings of Rush, Ray, Bell, Pliny Earle, and the generation of American alienists now passing away. As Dr. Wilbur has said, the wisdom of the fathers of American psychiatry soon became unwisdom to their immediate professional descendants.¹ This is especially the case with the subject now under consideration.

Dr. Hack Tuke² says, "The education of lunatics is no new thing. At an early period school teaching was introduced into some American asylums. Dr. Earle was foremost in this good work. Thirty years ago Dr. Brigham spoke of the great advantages which had resulted from winter classes in the State asylum, near Utica, New York."

Dr. Kirkbride³ more than forty years ago said, "Writing, drawing, painting, the study of mathematics, have tended to beguile many tedious hours. Several gentlemen have been usefully engaged in imparting instruction to others in the same ward, and two have been improved by giving regular lessons in one of the modern languages."

Dr. Brigham⁴ wrote, after his school had been in operation for some time, that "The school is especially beneficial to the convalescent, those that are melancholy, and those that appear to be losing their mental powers and sinking

into a demented condition. Those who have recovered but continue with us for fear of a relapse, and to test the permanency of their recovery, derive both pleasure and profit from attending. Those that are melancholy and depressed are beguiled from their sorrows, and for a while forget them, and thus the way is often prepared for their restoration. Those who appear to be losing in mental powers and are sinking into a demented condition are much benefited by the daily and regular exercise of their minds; their memories improve, and they become more active and cheerful. The want of proper mental occupation, according to our observation, is one of the most pressing wants of insane hospitals."

This system of treatment fell into disuse through the teachings of Dr. J. P. Gray and his school, which, starting from the correct premise, that insanity was the expression of a physical disease, arrived at the erroneous conclusion, that moral treatment was relatively valueless, just as Rush,⁵ starting from the correct premise, that insanity was the result of vaso-motor conditions in the majority of cases, drew the incorrect conclusion that venesection was pre-eminently indicated. Such extreme somatic views as those of Dr. Gray destroyed all proper clinical study of insanity, and made American psychiatry a laughing-stock.

In Europe, the principle, that somatic disease indicated purely somatic treatment, never became absolutely dominant, as Dr. Tuke² says: "Asylum schools were also to be found on the Continent. In Scotland, Dr. Crichton Browne long ago labored to promote mental culture and literary work among his patients at Dumfries, and formed classes for drawing, Greek, Latin, etc. In England attempts have been made, but only partially successful, in the same direction." Dr. Bucknill⁶ says that he introduced the school system of training into the Devon Insane Hospital, and that this was attended by good results. Griesinger⁷ has said: "Closely related to physical employment stands a healthy engagement of the mental powers. In insane hospitals, 'the school' is a means for this purpose, suited to many

of the patients. This is not intended to combat the insane ideas of the patient, or to demonstrate by philosophy, the impracticability of his projects, but to withdraw his attention from the morbid ideas to matters which are interesting and useful. It is a useful means of awakening the mind and of imparting the elements of mental culture to patients who were previously ignorant. * * * It may be combined with recitation, and can with advantage, be conducted on the principle of mutual instruction, the more educated patients instructing the uneducated, always remembering that the method must be made attractive to the patients."

Under the teachings of the extreme somatic school of Jacobi, which was the prototype of the Utica school, these principles gradually ceased to dominate European psychiatry, and schools died out almost everywhere except in Ireland, where the principle maintained its pristine position. Of the school there, conducted by Dr. Lalor,⁸ of Richmond Hill, Dublin Insane Hospital, Dr. Hack Tuke¹ says: "I do not put forward Dr. Lalor's ideas in regard to the education of the insane as novel. At the same time, I am not aware that in any English asylum has the regular practice of teaching been so thoroughly carried out, as by Dr. Lalor. I conclude by expressing my strong conviction, that the introduction of schools into all county asylums, is of the greatest importance. Surely the gloomy monotony which is apt to creep into these institutions would be greatly lessened, if not prevented, by systematic instruction, imparted in an able and interesting manner, and by the more frequent use of musical instruments. One great advantage of united tuition is, that it brings a number of patients together, and subjects them to a certain amount of wholesome rivalry.² It excites whatever desire to excel may remain in the breast of a lunatic, arouses the sluggish faculties, and stimulates laudable feeling. The attention is diverted for at least some hours from the delusions under which the patient labors, and is concentrated upon other subjects."

Of the same school, Dr. Gilchrist,⁹ of the Dumfries, Scotland, Insane Hospital, said: "I found educational agencies conducted with so much efficiency as to surprise and delight me. School instruction, as a moral agent in the treatment of the insane, has received a development in form and extent not to be witnessed in England or Scotland."

Dr. Blandford says:¹⁰ "I visited the Richmond Asylum, and, under the kind guidance of Dr. Lalor, inspected his celebrated schools, and was greatly struck with the spectacle presented of large classes of the inmates engaged in lessons on such subjects as geography, arithmetic and singing. As a means not only of instructing but in training the mind in ways of order and discipline, they must be most valuable, and in my opinion ought to be found in every large asylum."

Dr. Wilkins,¹¹ of California, says: "The most thoroughly organized school that we have anywhere seen was in the Richmond Asylum, at Dublin. The system has been completely established, and the organization as perfect as any schools in the country. The superintendent has taken great interest in, and paid particular attention to the subject, demonstrating not only the possibility of promoting good order and discipline by means of schools, but also of increasing the knowledge and improving the morals of persons while in a state of insanity. In the school for males we saw one hundred and twenty engaged in their recitations and exercises, which were conducted with perfect order and propriety. Reading, writing, arithmetic, object lessons, music, drawing and painting are taught. The school for females is conducted on similar principles, though needlework is added to the list of studies in this department. Six teachers—three of either sex—are regularly employed, at salaries about double the amount paid to attendants, and, in addition to their duties as teachers, are required to assist in keeping the house in order. Some of them always accompany the patients in their walks outside the asylum walls, in the public park, and in

other places to which they are permitted to go. These teachers, being better educated, more intelligent, and of a higher order than those whose services can be obtained for the ordinary wages, exercise a salutary influence over the patients at all times. Their morals, habits and manners, being thus cultivated and controlled, are necessarily improved, and it is surprising that this kind of occupation is not introduced into American institutions."

In 1882, in a discussion of the moral treatment of insanity, I wrote as follows: "Conolly¹² proposed to substitute the moral restraint afforded by the healthy conceptions of the mind of the attendant, which would act in sharp contrast to the insane ideas of the patient. The insane conception, as a rule, is affected by the influence of healthy conceptions, and so strong is this influence, that at times these masterpieces of perverted logic, the systematized delusions of paranoia, are dominated by them, and the patient recognizes his own insanity. At times the phenomenon is presented of the healthy and morbid conceptions contending, so that the French (Cotard¹³ and others) have denominated the condition 'folie avec conscience.' Barlow²² even believed that the perverted will of the insane man was capable of controlling his insane conceptions by cultivation of sane conceptions. An element of error in the opinion of these authors arises from the non-recognition of the existence of self-recognized morbid impulses in sane and insane persons; but even eliminating these there still remains a number of cases in which healthy conceptions in insane minds have dominated the morbid. It may therefore be assumed that the introduction of healthy conceptions into an insane mind tends to recovery, or to temporary benefit. Shakespeare illustrates this in 'Hamlet,' when he makes him have a healthy conception awakened, in the midst of an insane tirade, by the presence of Ophelia."

It has occasionally been observed that compassion for other people is a means of initiating recovery. In cases reported by Barstow¹⁴ and Griesinger,⁷ compassion for a

little child led to a patient's recovery. In a case observed by myself a patient recovered by the feeling of indignation excited by an attack made by a strong man on a little boy. Previous to this attack the patient was wrapped in his own lugubrious ideas, and up to the very minute of the attack in question, was complaining of his bitter fate. After the attack he spoke of nothing but it; he was much excited, and when calmed, was found to be much more cheerful than he had been in weeks. The same thing was shown in the case of Guiteau, in whom pity for Mrs. Garfield dominated for a time his imperative conception for the "removal" of her husband. Ravailac, the insane murderer of Henry IV., was at one time so dominated by a similar healthy conception that he broke off his purpose for a time.

It may be asked, Is it possible to introduce healthy conceptions into the insane mind, of sufficient strength to dominate the unhealthy conceptions? To this an affirmative answer only can be given. These conceptions are capable of introduction in two ways. In one, the insane conception is affected indirectly by intimidation; in the other, this effect is more direct. Leuret¹⁵ proposed direct intimidation as a means of treatment. The patients were to be argued with, and failing to yield to argument, were douched, and rewarded or douched as the insane conception was in abeyance or dominant. While, as Blanche¹⁶ has shown, this procedure resulted in forced concealment of delusions by the patient, still there were cases where it had an undeniably curative effect. Leuret supplemented this by a system of school training, which introduced healthy conceptions.

As Griesinger⁷ has said: "Another means of direct opposition, to be reserved for rare and desperate cases, consists in forcible repression of every insane expression, by judiciously attacking every insane word or deed. The chief means of this kind is the douche, while the patient is simultaneously impelled to rational dealings and expressions, partly by constraint and especially by resulting

advantages. Complete cure by such means alone is 'impossible.'"

Krafft-Ebing,¹⁷ from similar clinical experiences, is of opinion that certain cases are benefited by treatment on Leuret's principle, of which it is obvious that the action depends upon its suddenly changing the current of the patient's ideas, and from it being at times, *per se*, sufficient to introduce new ideas. In certain cases of depressing delusions it would increase the depression; and in certain cases of paranoia such treatment would add to the supports for the patient's insane ideas. I have certainly had, in some cases, beneficial effects from the use of the camisole. The idea of imprisonment in it was sufficient to deter the patient from insane acts, and day by day this slight motive had a stronger influence, and the insane tendencies disappeared. The use of intimidation would, in most insane hospitals, be attended by a bad moral effect on the discipline: like restraint, it would soon cease to be regarded as an individual therapeutic measure, to be used on the prescription of, and by the physician alone, but would be looked upon as a punishment. I therefore pass to other means of directly introducing healthy conceptions into the minds of the insane. Blandford¹⁰ says for this he has found nothing equal, in intellectual patients, to the study of language, since it is intellectual without being emotional, and does not require much assistance. This is an application of one of Leuret's principles. He reports a case where a patient, compelled to learn a certain number of verses by rote, was cured of a tendency to repeat words and phrases. The essential basis of such treatment was to avail one's self of the principle that a sudden mental shock to one's prejudices leaves one open to the influence of new ideas.

Guided by the principles thus laid down by myself, Dr. Clevenger¹⁸ succeeded in the treatment of the following case of melancholia in the Cook County Insane Hospital:

"J. S.; æt. thirty; German; married; printer, fell in

love with a young girl who lived with his wife. The feeling seems to have been reciprocated, for the young lady committed suicide, and both patient and his wife identified her body when taken from the lake. Later, patient attempted suicide in the river. He had unsystematized delusions of persecution, with hallucinations of sight; thought he saw the young lady alive, and also many of his friends who had long been dead. His mind became clouded at the inquest of the young girl, and he walked about with a dazed, troubled expression. It was with difficulty he could be led to talk of anything but his misfortunes. Anæmia indicated tonics, and much was done to interest him in general matters. He was finally induced to read articles in the *Zeitschrift für Psychiatrie* and other German medical journals, and seemed startled in recognizing cases similar to his own reported therein. By the last of September his mind had become decidedly clearer. October 14, 1883, he was discharged. January 1, 1884, he called to convince us of his recovery. He is a compositor on a German paper. Says he is seldom depressed now, and when ideas of persecution arise he reasons himself out of them, recalling the instruction he received while here. The possession of a mental background which may be educated to withstand insane tendencies is an all-important feature in some forms of insanity. Of course, in parietic dementia it avails nothing, but should be appealed to wherever hope exists."

Dr Marvin Shew,¹⁹ of the Middletown, Conn., State Insane Hospital, introduced about this time military drill as a similar means of treatment. Soon after, Dr. Andrews,²⁰ of the Buffalo Insane Hospital, introduced Dr. Lalor's system into that hospital, which he found to be attended by good results.

The most recent attempt of this kind, is that of Dr. Cleveland, of the Poughkeepsie, New York, Insane Hospital. Concerning this, Dr. C. R. Agnew,²¹ writes: "A day school, for teaching the branches of a common school education to the patients, was established, with the hope

of affording a diversion for the patients, and as a palliative for the monotony of asylum or hospital life. In the school, which is under the care of a competent male teacher, there are classes for men in the morning and for women in the afternoon. Reading, writing, arithmetic, spelling and singing are taught. At my last inspection, as manager, I saw eighty men engaged in a contest in spelling, and the effect of the healthful exercise of the mind of the patients was to me most promising. All who are in the management of hospitals for the insane know how difficult it is to plan for a daily life for the patients in which shall be provided a due allotment of such mental work as the latter are individually capable of doing." He then cites the following cases :

"CASE I.—M. A. M., æt. eighteen, dressmaker, common school education. Maternal grandfather epileptic. Admitted December 18, 1885. Suddenly, six weeks ago became "flighty" and excitable. She grew worse until she became wholly delirious and unmanageable. Kept a prayer-book in her hand, and prayed continually. One parent is a Roman Catholic, the other a Protestant, and this is supposed, by her, to have disturbed her whole moral nature. Two weeks previous to admission, became stupid and refused food. At rare intervals would rouse up, be noisy and destructive for a few minutes, then lapse into stupor. Has eaten nothing for two days. Pulse slow and feeble. Is weak and anæmic. Hands and lips blue; breath very foul; body covered with an eruption. Has auditory and visual hallucinations. Was, with great difficulty, fed with tube until January 1, 1886. Up till then had not spoken, but this day said she wanted to go home. She ate voluntarily until January 7. Was fed with tube until January 16, when she began to eat heartily. Stupid, and has spoken but the few words on New-Year's Day. January 31, wrote a well-worded letter home. Speechless still as before. February 20, silent and stupid. Fed for a week with tube. March

1, eating well now. Sewing this morning. She began going to school, into the duties of which she entered heartily, though she was still confused and stupid, and had hallucinations of a man peeking at her through the window. She begun to gain physically. She would read in school, write and spell down in the spelling matches. In a day or two she began to talk in the wards. April 1, mental and physical improvement has continued. She is stout and strong, reads, sews industriously, helps in the wards, goes to school, talks rationally, and writes rational letters home."

"CASE II.—C. S., æt. twenty-two, domestic. Admitted April 18, 1883. Duration of insanity, one year. Was idle, stupid, silent, taciturn, silly, laughing to self, lying about on floor, etc., until August, 1884, when she began to improve. September to December, 1884, she was cheerful, active, industrious, neat, answering questions and talking pleasantly and rationally. January 1, 1885, she was again idle, stupid, speechless, supervised in eating and care of person. April 29, she got angry, and said she would not be bossed around; talked quite excitedly and intelligently for a few minutes, then relapsed again into silence and taciturnity. November 5, again spoke a few words rationally and intelligently, showing understanding of all done about her, and unimpaired memory. Had become neat and tidy in person and dress. Did not speak after this. February 1, following, began going to school; here she would answer questions, recite lessons, spell and take considerable interest, but upon the wards she is as silent and speechless as ever, up to April 1, 1886."

"CASE III.—P. J. B., male, æt. thirty-two, bar-tender. Admitted July 13, 1882. Duration of insanity two years. His condition for a long time previous to admission had remained unchanged. Had suspiciousal and persecutorial delusions, feared poisoning, mind slow of action, morose and obtuse, but in good general health. On admission,

and day following, gave brief, non-committal answers. Subsequent to this became perfectly silent, and would not speak even to his mother, who would occasionally visit him. This absolute silence continued through 1882, 1883, 1884, 1885, until February 1, 1886, when he went for the first time to the hospital school. Since this, up to April 1, 1886, has been a regular attendant at school, where he reads and recites naturally, spells down, etc., conducting himself as an exemplary scholar. Away from school, upon the ward, he is as silent and non-committal as formerly."

As this communication was intended merely as an historical *résumé*, its object is accomplished. If the question be raised why the school system was not permanently introduced into the Cook County Insane Hospital? the report of the Illinois State Board of Charities, for 1886, will furnish a sufficient answer.

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Treatise on the Works of the Pseudo-Metaphysicists, or False Supernatural Philosophers.

“Large fleas have little fleas, and other fleas, to bite them;
And little fleas have other fleas, and so on, *ad infinitum*.”

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THE true physicist, or natural philosopher, who never attempts to treat of anything but matter and its phenomena, has always had, since the first history of the animal man, his greatest and most influential enemy in the hypocritical pseudo-metaphysicist, who too frequently has succeeded in making society believe him to be a true instead of a false prophet; and because of this, not only is physical science terribly neglected, and the human race is consequently demoralized and rendered miserable, but the true metaphysicist (who is also a physicist, or natural philosopher) is so misrepresented by these false philosophers that they have, unfortunately, fallen into disrespect in the eyes even of the natural philosopher. Consequently the supernatural, which must be recognized by the natural, as cause for effect, has to a great degree become degraded before the human race. I don't pretend to be a metaphysicist or supernatural philosopher, although I admit there have been such who have true followers. I simply labor to be a physicist or natural philosopher; and in addition to my article published in the *ALIENIST AND NEUROLOGIST* for July, 1886, on Criminal Responsibility, I, in a great degree, follow up that article, and do my best to expose the false philosopher or pseudo-metaphysicist, who, if his Satanic Majesty (who I am not acquainted with) is ever represented by man, it is by the

pseudo-metaphysicist, the false, supernatural philosopher, who misrepresented and persecuted every true physicist and natural philosopher—among the rest Galileo, the astronomer, and to-day, among the rest, St. George Mivart. But the true physicists don't fear those false prophets, if for no other reason but because they know there are honorable metaphysicists who are also physical scientists, which I will show in this treatise.

At no historical period of the animal man did the true metaphysicist and the false take such an active part to instruct the human race, as from the time of Moses to the birth of Christ, and from the death of Christ, until the present day. But it is remarkable, that during all that time, all the pseudo-metaphysicists have disagreed as to the instructions given to them by the Great Supernatural, whom they claim to be so intimate with, so that their philosophy differs as much as Yes, and No, black and white. They have, consequently, hundreds of different religions, all hating each other, and each declaring that they and they only are right, and all the others wrong. They all agree to the first natural law, self-preservation, but denounce the second; so they don't do to others as they would have others do to them. All of these associations, that are led by these false prophets, hate each other, because of what they say God taught them, yet they all agree in some particulars; for example, all agree that God made man. They also say that he made man's greatest enemies, the world, the flesh, and the devil. In fact, enemies they say, it is impossible for man, always to resist; therefore the necessity of man being always a penitent. To the physical scientist this teaching appears to be a terrible accusation against the supernatural, and that such teaching would scientifically lead to the fact, that the most immoral criminals would be the greatest penitents, because they believe that if they wished, they could resist God, and obey the enemies he had created to destroy them. Then, if they were penitent, he would pardon them. Strange that these false

philosophers would never, themselves, pardon whom they consider a criminal man, but punish him even with death. I remember when they approved of hanging the criminal man for stealing a sheep or horse.

Again: formerly all these pseudo-philosophers seemed to have agreed that the human race, in every part of the world, should be governed by persons called kings, queens or sovereign powers; and no matter whether these persons had intelligence or not to govern them. It was a terrible crime, deserving of death, to resist such authorities. If these teachers got their views from whom they said they did, they had no right to change these views, but they all have changed. Now they recognize republican governments, and admit that men have the right to choose how, and by whom they will be governed. This is a wonderful change in these false philosophers; hard to say what they may do next, for all our social laws and social governments, that have been changing since there is any history of man, have always been due to the pseudo-metaphysical philosophy. On this has been based all the bloody wars of the world. Now, however, a gentle, gradual change is taking place, because of physical science or natural philosophy; therefore there will be less immorality, less crime, less misery and much greater happiness in the human race. The great and chief object of the physical scientist is to discover the physiology of all matter, and consequently the limits of man's thinking capacity, so that as far as is possible, the animal man may be improved physically, and consequently intellectually and morally, by the study of nature's laws, which often leads to its obedience.

What has been in the past, and is now, the most general crime in the animal man, and not in any of the lower animals, the crime which leads to so many other crimes, is unchastity and impurity. None, or very few, of the lower animals are ever unchaste; the natural union between the male and female is for procreation, never otherwise; never does the male interfere with the pregnant female, nor would the pregnant female submit to the male. How dif-

ferent is it with the animals men and women, the large majority of whom are literally destroyed and miserable, because of their, very frequently, uncontrollable desire to gratify their sexual desire; this, in truth, is the greatest cause of misery to the human race. It causes more distrust, more dishonour, more disease, more insanity, more death, more murder, penitence and religious fanaticism, than is caused by all the other physical defects in the animal man. Take the true history of the human race as a whole, and it is a history of suffering and misery, and what I have just written is the greatest cause for it. Truly, in this respect, the lower animals are more moral and more happy than is the animal man. Why is the male and female animal man in this sad state? Because man is very far from being, like lower animals, perfectly organized, perfectly developed; if he was, he would probably be as moral as other animals, and his desire would, like the lower animals, be only for procreation.

Physical science proves distinctly, that the animal man is more various in physical organization, and consequently, in conduct, than is any of the lower animals; this is due, no doubt to many causes. First, all the lower animals, as far as we can see, have arrived at perfection. In their development, there has been no interference with nature, or where there has, it has been to encourage the advancement of nature's laws. Secondly, man, although he is so much of a higher order of animal, he is far from being perfectly organized, because he requires a greater length of time to be developed than does any of the lower animals. A chicken, for example, is fully developed, intellectually, when one month old; man is not physically or intellectually developed, before he is, twenty-five years old, and physical development has not only been obstructed by the teachings of the pseudo-philosophers, but by many other causes. All their teachings, however, are an assumption of the supernatural, and in opposition to the natural. They say "thou shalt love the Lord, thy God, with all thy *heart*, with all thy *soul*, with all thy *mind*, with all thy strength, and thy

neighbor as thyself." Then they teach that soul and mind are one, having first taught that they were *two* distinct entities. What an absurdity! what a strange teaching! As to the second part, "love thy neighbor as thyself," an actual impossibility, and would lead to immorality and crime; it would justify a man to take of his neighbor, all his sustenance, even to his wife. How different from nature's laws; the *first*, self-preservation, the *second*, do to others as you would have others do to you. These laws lead to morality and justice.

James Anthony Froude, on page 75 of his "Oceana," a beautiful book, speaking of all that science has done, says: "What, after all, have their wonderful achievements done to elevate human nature? Human nature remains as it was; science grows but morality is stationary, and art is vulgarized; not here lie the things necessary to salvation, not the things which can give to human life, grace or beauty or dignity."

It is evident that Mr. Froude is, like many other very beautiful writers, very ignorant of physical science. He should have known that morality depends upon a physical organization, more than upon the knowledge of any physical science, rather than upon any branch of physical science; he should have also known that the physicist, as such, never presumed to say what was necessary for salvation. The more we study the pseudo-philosophy, the more are we convinced that it is opposed to nature's laws, and by its highest power, it arrests the physical development of man; consequently, it has assisted in rendering a man a fool and an immoral criminal. Some fault has been found with me by criminals, because I have said all criminals and all immoral persons were either teratological fools or pathological maniacs, who should not be killed except in self-defence. My accusers seem to be ignorant of the fact that Holy Scripture also says, that it is "the fool that hath said in his heart, there is no God." Well, I have said I would not kill these fools, but separate them from the moral portion of society,

who were moral because they were, in their organization, physiological. These accusers really prefer to be considered intellectual penitent criminals, who should risk punishment for their crimes in this world, and after death, in the world to come. Why is this? Because they have been so long ignorant of nature's laws, and educated with the firm belief, that so long as they could conceal their immorality and crimes from society and be truly penitent, all would be well. This is the hypocritical state of society in the present day. Therefore, the most immoral criminals are generally 'the most pseudo-christian penitents. Anyone who reads the daily papers knows these facts.

Why are men so unequal and so imperfect in their physical organization as that some are physiological and consequently, intellectual, moral men, who never commit crimes, while others are teratological fools, who are generally immoral criminals. This is to be observed between brothers and sisters. There are many causes, as there are many causes for the great difference there is in many lower animals. One great cause is the results of marriage. The *Medical World* says, "There is so much artificiality in our modern civilization that we can never hope for an exact sexual balancing. Moreover, among the mated (the married) complete sexual harmony is so rare that its existence may almost be doubted. This is not a very hopeful state of affairs." No doubt but this is one of the causes of family differences, but there is another where there can be no possible proof of immorality and dishonor producing illegitimacy. I allude to unconscious memory—a natural law, now so well established that the human race is born with it, and perhaps all animals. It is a well-known fact to the majority of married persons, and more particularly to physiologists generally, that it is not at all uncommon that married persons, while performing the act of procreation, think of others than those to whom they are united. The man thinks of another woman, or the woman thinks of another man. This can be the cause

for the great difference in families, as well as illegitimacy. This is, to a great degree, a recognized fact in the Catholic Church, and Moses taught it to be a physical truth when he described how Jacob increased his drove of cattle by placing before them the striped switches.

All these statements being physical facts, how necessary for the sake of morality, is it, that the human race should be instructed in nature's laws! Again, a child may be begotten or conceived by an immoral criminal, an inebriate, a maniac or a fool; or there may be some cause of alarm to the parents at the moment of procreation, or to the mother alone, during pregnancy. Any of these causes, because of the phenomenon of unconscious memory, a subject so well treated of by Charless Creighton, M. D., accounts for heredity, that is to be found in all the human race, and should make parents anxious not to resist nature's laws. It is because of this natural phenomenon, or force of mental organism, that we can so easily account for the subjective influence of prayer, or the subjective influence of cursing and swearing, evil speaking, lying and slandering. It is, I say, by this natural law of unconscious memory that the physicist can well account for the law of heredity, which may be either good or evil. No wonder that in the human race there is so great a difference in their conduct—in what they say or do.

From these facts, it is evident that no man or woman, who are anxious about their offspring, should marry the offspring of the insane or fools, of the inebriate, or of the immoral or criminal. No doubt this would lead to millions of persons never becoming married. But it would be a great means to improve the human race. Even parents would try to lead moral lives, for the sake of having their children settled; and moreover they would do their best to have them educated, and brought up in accordance with nature's laws, which are all moral laws. The best way for the male or female to practise the moral law is to only *say* or *do* that, at all times, which they would be neither ashamed or afraid of society to know. More particularly should this be the case

between husbands and wives, parents and children, brothers and sisters. It is for secrecy that the moral law is so frequently broken. Many are under the impression that all men are equal and have equal social rights. Never was there a greater error. Never can men be equal, and have equal social rights till they are equal in their physical organization. All physiological men are equal, physically; consequently have equal social rights, because all live in obedience to nature's laws; self-preservation is their first law; their second, to do unto others as they would have others do to them. I am rejoiced to find that great interest is now taken in physical science, and particularly in the law of heredity, by some members of the medical profession in Montreal. In the *Canada Medical and Surgical Journal* for July, 1886, there is an article read, and remarks made on it, by Dr. J. C. Cameron, "Notes on the Determination and Causation of Sex," by Dr. Mathews, of the Hudson Bay Company. It is certainly a most interesting paper, giving much instruction on nature's laws. My friend, Dr. Cameron, not only read this paper well, but his remarks were most interesting. He concluded thus, much to his credit: "During countless ages, the diversity of man's environment, the unceasing struggle for existence, the survival of the fittest, and the gradual development of the race, have continually, through barbarism and civilization alike, determined those laws of reproduction, which were from time to time most conducive to man's welfare. Nature's experience is greater than ours. Her wisdom, patience and unselfishness, are greater than ours; her balance more justly equipoised than ours. But though we cannot supplant her, we may learn important lessons by observing her methods. The careful study of sex formation should throw much light upon the mysteries of heredity, and enable us to foresee and possibly forestall many family taints or predispositions. The knowledge that a grandfather's peculiarities are liable to be propagated through his daughters to his grandsons, should help us to grapple

with such diseases as dipsomania, hæmophilia, or gout. If, in any degree, it be true that the superiority of the parent is a powerful factor in determining the sex as well as the strength of the offspring, it must be equally true that the deterioration of the parent will cause deficiency or deterioration of the opposite sex in the succeeding generations."

Again: I will give a quotation from the *Canada Medical and Surgical Journal* for June, 1886, because it is a proof that the members of the medical profession in the whole Province of Quebec, begin to see the necessity of physical science.

I found the following, on page 700: "The committee appointed at the last semi-annual meeting of the college, (meaning the College of Physicians and Surgeons for the Province of Quebec), to consider the amendments necessary to put into force the report of the committee,

* * * * * Several hours were spent in discussion, when the committee declared it was in favor of the college having a central Board of Examiners. It also came to the conclusion to suggest that the following subjects be made part of the preliminary examination, and that they be made obligatory: Moral and Intellectual Philosophy, Physics, Mineralogy, Geology, Astronomy and Botany."

This is good: it shows the inclination for physical science. Although, perhaps too much is demanded for the medical student, and I doubt very much, but that at a general meeting of the college, the resolution of the committee will be rejected. The pseudo-philosophers will use their influence, and lie, as they are doing every day, by stating that the physical scientists are trying to banish the name of God out of the world.

The college committee should have borne in mind, that the term "physical science," takes in the different sciences of all matter and its phenomena; it is natural philosophy.

As another proof of the variations to be found in the animal man, I have much pleasure in quoting from the *Popular*

Science Monthly for October, 1886, part of a splendid article by my friend, Dr. Francis J. Shepherd, on the "Significance of Human Anomalies." He says: "In the view of our present knowledge of the animal kingdom and its development, and with the exception of the great principle of evolution, the explanation of these variations is simple enough, viz., that they point to the fact that man has descended from some lower form, and 'is the co-descendent with other mammals of a common progenitor.'—(Darwin.)

* * * * *

I could multiply, *ad infinitum*, the variations in the human anatomy, with corresponding normal conditions in the lower animals, but I think I have described a sufficient number of examples to show how common these animal resemblances are in man. On what theory can we account for their existence, except that they are reversions to some pre-existing and lower type? This is the only logical conclusion to which the study of morphology leads us, and 'to take any other view,' says Darwin, 'is to admit that our structure and that of all the animals around us, is a mere snare, laid to entrap our judgment.'"

What I have quoted is a great proof of what a valuable branch of physical science is morphology. The next question for consideration is, What should parents do for their children?—I mean when they are youthful and dependent upon them. They should devote their whole lives to them till they are able to provide for themselves; first, by doing all they can to bring them up strong and healthy, in accordance with nature's laws, and as they grow up, educate them, by having them altogether instructed in nature's laws. According to their strength and sex, they should be educated in physical science or natural philosophy. In their youth, the children must be gradually taught how to spell, read and write, and some figures, a little grammar and a little geography. During this time, natural morality should be their environment. Then the parents shall send them to an institution, where they can be well instructed in

physical science generally; that is, in the physiology of matter generally, which is a whole life-study, and the more of it is understood the better. But each member of the institution may choose and be particularly taught, some of the numerous branches of physical science, so that they may be particularly successful in the branch they choose. The females would likely study all they possibly could of hygienic science, that they might the better secure the general health and happiness of their family, they being taught how to eat and drink, and work, and rest, and take pleasure, in accordance with nature's laws; they will learn more particularly, nature's great moral laws, and live in obedience to them. Without going further, this will be quite sufficient for the youthful females to learn at the school of physical science or natural philosophy, except those females who wish to become members of any profession.

The same, so far, is to be said, with regard to male students. More particularly must they study the physiology of all organic matter upon this planet, in its different degrees or stages; the inorganic and organic animal and vegetable matter. It is only thus can they learn natural philosophy; the forces, or the phenomena, of matter in its various forms, viz., geometry, geology, chemistry, astronomy, botany, etc.

Any man who can take any one of those branches of physical science, or any other branch, will find he has a life's work in the branch he has chosen. A perfect study of these things will explain all the forces and motions in nature, and the cause for all effects. It will even lead to the knowledge of all diseases in all organic matter, both animal and vegetable. Even will such knowledge explain why one climate is healthy and another unhealthy, why one is excessively cold and another excessively hot. There is nothing in nature that can escape the study of physical science; and it is because of our ignorance of it that we are so ignorant of the etiology of disease, immorality, crime and misery.

Who can tell the cause of all the atmospheric *materia-morbi*, or the cause of some germs that compel the surgeon to use antiseptic treatment to save life? or who can tell whether it is one atmosphere, more than another, that conveys these *materia-morbi*? No one, because of our ignorance of nature's laws.

It is wonderful how the *a priori* philosophers have neglected to study, and learn what it is possible to learn, and yet devote their whole time and talents to the study of what it is impossible for them to understand—metaphysical science, or supernatural philosophy; for the greatest of them that ever lived, said (and nearly all Christians pretended to believe in him), "*The Father incomprehensible, the Son incomprehensible and the Holy Ghost incomprehensible.*" But he never said that nature and her laws were incomprehensible, nor did one of those of his period. But the pseudo-metaphysical scientists of the present day are reversing the order of things; they are teaching that the Father, Son and Holy Ghost are all comprehensible, but that nature and her laws are all incomprehensible. Consequently the study of physical science, or natural philosophy, has been grossly neglected, and the human race has become physically abnormal, therefore immoral and criminal. At least this can be said of the so-called Christian world, that has so many different religions, all opposed to each other, all opposed to the fulfillment of nature's laws, self-preservation, and doing to others as they would have others do to them.

Lately, I published in the Canada *Medical and Surgical Journal* "A Medical History of Louis Riel, when he was in Longue Point Asylum." I find I have only been comprehended by very few of my medical friends in the city, but I find I have been sufficiently comprehended by the political press, to arrest all political discussions on the death of the unfortunate teratological fool or physical monstrosity. Some were angry at my term, because I had said that Riel was "a fine, handsome looking fellow," and afterwards, "a teratological fool." These people fancy that

all anatomical monsters are something very ugly to look at, but they are very much mistaken, which they may learn from some of the great artists, who have painted some *beautiful* looking angels, with arms and wings, knowing that such a painting represented an anatomical monster.

I am very sorry for these so-called religious, but certainly immoral people, to find them so ignorant of physical science, or natural philosophy; but it is to be hoped that their great great-grandchildren will know better.

As a proof that natural philosophy is strongly supported by the greatest metaphysical philosophers, I make the following quotation from the works of the great Cardinal Newman. He says, as follows, after speaking of Christianity: "It is a religion in *addition* to the religion of *nature*, and as *nature* has an intrinsic claim upon us to be obeyed and used, so what is over or above *nature* or supernatural, must also bring with it valid testimonials of its right to demand our homage. Next, as to its relation to nature, as I have said, Christianity is simply an *addition* to it; it does not *supersede* or *contradict* it; it recognizes or *depends on it*, and that of necessity; for how possibly can it prove its claims, except by an appeal to what men have already? be it ever so miraculous, it cannot dispense with *nature*. This would be to cut the ground from under it, for what would be the worth of evidences in favor of a *revelation* which denied the authority of that system of *thought*, and those methods of *reasoning*, out of which those evidences necessarily grew?" For the sake of morality and truth, it is a pity that some of our so-called metaphysical philosophers have not taken lessons from such physical scientists as Cardinal Newman. If they had, no doubt there would be more physiological men and women, and consequently a more moral and happy state of society. I again repeat, that every immoral criminal, whether they be male or female, are either insane to a greater or lesser degree, or they are teratological fools to a greater or lesser degree; they are not physiological persons. This is a physical truth, or natural philosophy,

that cannot be destroyed by the teachings of metaphysical science, or even *a priori* philosophy. No doubt but that it is a strict adherence to nature's laws, that makes the Chinese people so much more moral than the Europeans, not their religion, although they were civilized, and had an *a priori* philosophy, and worshipped a supreme being, five hundred years before Christ was born, at least. I form my judgment from an able article in the *Nineteenth Century* for July, 1886, written by J. N. Jordan, in which he shows that they are the largest portion of the human race, being 250,000,000, and that the males and females don't live or dwell together, unless they are married. This is the very best natural precaution that can be taken by any people. It is a proof that consciousness in the human being depends upon physical organization and education, and that the Buddhist can be conscientious, as well as the Christian, although they believe in Buddha, while we believe in Christ; and it is a fact that they are united in their faith, while Christians are so divided as to hate and murder one another for their love of God.

The next important question to be considered is, Where will the teachers of physical science and natural philosophy come from, to instruct society generally? Already teachers count by hundreds in Great Britain, France, Italy, Germany, United States, and I have named a few even in Canada. I will now name one of our greatest, Dr. Sterry Hunt. The following, which I cut from a daily paper, proves I am correct. Already he has written much on the physiology of matter:

DR. HUNT'S NEW BOOK.—Dr Sterry Hunt is at present engaged in compiling the index to his forthcoming new book, "Mineral Physiology and Physiography," which is being looked for with so much interest by geologists. This will include the following essays:

1. Nature in Thought and Language.
2. The Order of the Natural Sciences.
3. The Chemical and Geological Relations of the Atmosphere.
4. Celestial Chemistry from the Time of Newton.
5. The Origin of Crystalline Rocks, with a statement of the Crenitic Hypothesis.
6. The Geognosy of Crystalline Rocks.
7. The Decay of Crystalline Rocks.
8. A Natural System in Mineralogy, with a Classification of Native Silicates.
- 9 The History of Some Pre-Cambrian Rocks in America and

Europe. 10. The Geological History of Serpentes, including Studies of Pre-Cambrian Rocks. 11. The Taconic Question in Geology.

As soon as the book appears there will be much information for the physical scientist.

It is a positive fact that a greater effort is making against physical science than formerly by the pseudo-metaphysical philosophers, since His Holiness the Pope of Rome has issued orders for its study. But physical science will yet succeed, and the world will yet be governed by natural philosophy. Then will society know what we are now so ignorant of—physical cause for physical effect, when the great universities of the world will not be what they are now, but will be universities to instruct society in all the different branches of physical science, or natural philosophy.

I want to make some further remarks about the medical profession, and upon morality. It is very true there has been some advancement in the medical treatment of disease, but not so much as in surgery. But there is not one-hundredth part as much advancement in either as there would be if physical science, or natural philosophy, was made the basis of medical science. Indeed, I am satisfied that if the human race were living in obedience to nature's laws, very few medical men would society require. But it will be long before this blessing takes place. So the present generation of medical men have no reason to fear.

I am pleased to see that great efforts are making to have females enter, as members of the medical profession, for there is no reason why they should not, providing they have a school to be instructed in, separate from the school where men receive their instruction. And as soon as possible the instructors in these schools, should be women, for the sake of morality; and for the same reason, females who get degrees of medicine, should confine their practice to female patients, and in time females should only employ them. As soon as the rule of society will be to have male

and female doctors—the men to be treated by the male doctors, and the women by female doctors, there will be a great diminution of disease and a great increase of physical science, or natural philosophy. But there must be a complete and entire separation, in such a medical profession,—no consultation between male and female doctors, except they be man and wife, father and daughter, or brother and sister. This will also cause the establishing of male and female hospitals, for male and female doctors, and nurses. The same for insane asylums and prisons. All of which will tend for the better, to a great change in our social order. There will be much less of disease, much less of immorality, much less of crime, and consequently, much greater social happiness in society.

This great change in the medical world, will lead more fully to the study and instruction of physical science, or natural philosophy, so that greater moral changes will take place in society; males and females will not be found working together in any sort of factory whatever, and there will be female stores for ladies to make purchases in, and male stores for men to make purchases in.

Perhaps the day may come that there will be female legal advisers to advise females, and male legal advisers to give legal advice to the males. And why should there not be courts of law presided over by female judges, for the benefit of female society? There is no reason at least that we Britishers should object, who recognize in *one* female, the greatest sovereign in the world.

It is quite evident the more natural philosophy succeeds the greater justice will there be done to both the male and female branches of society, and the greater will be morality. It will lead to lesser secret sociability among the sexes, after family sociability, which is domesticity and true natural religion, between man and wife, parents and children. All other sociability will be abolished, except what will be open to the public sight and hearing.

It must be understood that I neither reject nor resist the great truths of Christianity, although chiefly incomprehensible; on the contrary, I assent to them, but am much disgusted and opposed to those that make use of the name of Christianity for the destruction of natural philosophy, and thereby destroy the morality of society, and cause the increase of insanity and teratology, and consequently, of crime and misery.

Physical science, natural philosophy and natural religion, will never obstruct the truths of Christianity, but it will never assume to comprehend the supernatural, which its believers believe in, although the greatest of all theologians agreed with them that the supernatural was incomprehensible. The physical scientist knows there must be cause for effect, and that because there is the natural there must be the supernatural.

The physical scientist cannot conceive that the whole idea of the supernatural is solely interested with this small planet, the smallest of all the planets in nature, because man is upon it. There may be, for all that is known to the contrary, a thousand times a higher degree of animal in the larger planets, than man, and then not be even perfection, or anything like perfection, for that would be perfect happiness; for all desired would be then obtainable.

The day may come when man, on this planet, will know so much of the other planets as to laugh at our present ignorance of them and of matter generally. I have chiefly devoted myself to the subjective mind; that is, mind which is proved to be the force or phenomena of the *materia cogitans*, an organism to a greater or lesser degree in the whole animal creation—the highest in the animal man. But I don't deny, because I cannot, that there may be objective minds—the phenomena of moving matter, which, in a great or in some degree, is a force to subjective mind, and may account for that which we are so ignorant of, the cause of disease, particularly the most terrible of all diseases and the most inexplicable—insanity,

the increase of which in the present day is sufficient to call forth the attention of all physical scientists.

I once had the pleasure, a few years ago, of hearing a lecture, in the Natural History Society's room, from Sir William Dawson, principal of McGill University, and Professor of Natural History, which was most learned, on the subject of "All Matter Having In It Mind." At the time I thought, as far as I understood him, that his views were extreme. Now I do not, although he did not, like Professor Clifford, call it objective mind, nor like G. J. Romanes, F. R. S., call it the theory of Morrison. One thing is certain, no matter what name we give it—there is a force in nature, the phenomena of matter, perhaps the very matter which connects the whole of the planets, that we don't at present understand, but in time it will be understood, because it is in nature.

AN UNPLEASANT BUT TRUE SUBJECT.

There is no use of anyone denying what so many thousands of people to their sorrow, know to be true, that night or late evening religious services in public churches, are made use of, both by men and women, to meet and walk, and associate with persons, that leads very frequently to immorality. Let these religious services be only held in clear daylight, as they were sixty years ago, and society will see the good moral social effect.

I well remember sixty years ago, ten years before there was gaslight in any city, when the only religious service in England and Ireland, and I am told, in Canada, in either the Catholic or Episcopalian churches, were morning and evening services, all in the clear daylight. Evening services, in all the churches, very short; never any sermons; all simply for the worship of God. There was more charity and less hatred at that time, between Catholics and Protestants, than there is now, and certainly there was greater morality in society, although not very

great. At that time no respectable girl was found walking alone after dark, in the streets of Dublin, nor accompanied by one she should not be accompanied with. But when gas, and sermons, were introduced into the rich churches of Dublin hundreds upon hundreds of women, of a rich class of society, were to be found in the streets of Dublin on Sunday nights; and since that time immorality and crime have increased by a thousand degrees. What I can say for Ireland I know, from the writings of others, can be said for the whole of christendom. Sixty-five years ago there was less preaching in churches than there is now; and in private families there were more following the command of Christ, which was, "When ye pray, say, 'Our Father, who art in heaven.'"

When I was a boy, studying my Latin grammar, there was not a gentleman in the village in which I lived, could afford better artificial light in their houses, than tallow candles. The rich noblemen that surrounded us used wax candles, while at dinner, but about their houses, tallow. And I remember rushlights in the houses of some of the small farmers, and generally in the houses, of the laboring class. Well, in some respects, there have been great changes in the social order since that time. But unfortunately there has been an increase of idiocy, insanity, and other deformities and diseases, consequently a great increase of immorality and crime, all proven by the fact, that in all christendom there has been a most wonderful increase of hospitals, insane asylums, prisons and penitentiaries, and the increase is going on every day, and the wants of society are never satisfied.

It is to be regretted that a large portion of society is still crying out for more severe punishment for condemned criminals, under the false impression that punishment arrests crime, or the fear of punishment arrests it. It is not understood that as a rule, criminals generally speaking, have no fear, and that punishment injures instead of improves their organization. This fact must be known to every physical scientist. Christianity, and the

laws established under the metaphysical philosophy, is the very strongest proof that the most terrible punishment that could be inflicted in this world, has been inflicted, and failed to arrest crime, as has also the most terrible threats of eternal punishment after death, in the world to come. Not only have these means failed to arrest crime, but they have proved an additional cause for the increase of it. It is the reason why the influence of physical scientists has succeeded in stopping the use of the cat-o'-nine-tails in the British army, and by all accounts, the barbarous punishment inflicted in the prison of Sing Sing, in New York, makes more criminals; for the unfortunate creatures would prefer death to the punishment they receive; and they are right; death is preferable to such persecution, to such terrible torture, and the practice is a disgrace to humanity. The punishers are of the tyrannical class, who glory in slavery, who don't like the term evolution, and knows nothing of physical science or natural philosophy.

I am perfectly aware that something should be done with the condemned criminals, to protect society, but it must be done in accordance with natural law. Let me point out the means I would suggest to deal with confined criminals: They should be subjected to a board of medical, physical scientists for examination, and the physical scientist should, as in a hospital he looks for the cause of sickness, take the same trouble in prison to search for the cause of immorality and crime—then do his best to remove the cause. For example, should the cause be in man, uncontrollable sexual desire, I know no better means than to make the man a *eunuch*, by some surgical or medical treatment, or by detaining him till old age made him one. I speak of those insane or teratological criminals who are supposed not to be sufficiently insane, or sufficient fools, to be confined in an insane asylum. What I have said of criminal men, I say of criminal women. I cannot say ovariectomy will do for women, as castration will do for men; nor do I

know any surgical operation that will, although it fortunately arrests procreation. The medical profession does not yet know any medical treatment that would destroy sexual desire in either the male or female. But let the law once recognize that there are certain immoral criminals, such as the English press, more particularly, is now drawing attention to, that can only be rendered harmless to society by the destruction of their sexual desire, and some such pharmacologist as we have in Professor James Stewart, will soon discover the medical remedy that will prove a blessing to society. I do not propose these remedies as a punishment to criminals, but to arrest immorality and crime, which neither punishment nor the threatening of it, has ever yet arrested. To make men eunuchs, cannot conscientiously be opposed by the *a priori* philosophers, for in the ninth chapter of St. Matthew, verse twelve, Christ is represented to have said, "and there are eunuchs that are made so by men, and there are eunuchs who have made themselves eunuchs for the kingdom of heaven's sake." Therefore, I say they can be made eunuchs for the sake of morality in this world.*

* Since I wrote the above I cut the following from the *Montreal Gazette* for July 22, 1866: "A RIGHTEOUS SENTENCE.—A Villainous Crime Punished with Servitude for Life.—At Hampton, N. B., on Thursday last, Judge Wedderburn passed sentence upon Israel McLaughlin, for chloroforming and committing an assault upon a young lady near that town. In the course of his address his honor said: 'I need not say to a man of your intelligence how dreadful that crime is. I need not say how much it involves; for on the trial you have heard all that transpired, and you then must have been impressed, if you are not now, how tremendous was the crime you contemplated and revolting the act you committed. So dreadful is that crime that the Parliament of this Dominion, voicing and declaring the sentiments of the people at large, has already altered the punishment, and it is only now, because that authority and the statutes in which it is embodied are awaiting the proclamation of His Excellency the Governor-General of this Dominion to bring them into operation, that they are not in force; and if they were I would have been deprived of any discretion, and would have had to sentence you to a very severe punishment, and also would have been compelled to make an order that, during your imprisonment you should be severely whipped. If anything was wanting to show what were the sentiments, and the common sentiments, of this community in reference to a man who, under the guise of night, will steal or break into his neighbor's premises, and then and there, secretly and quietly, administer a deadly, a terrible drug, to an innocent victim, in order that he might gratify his passions upon the sleeping and almost lifeless form of a young and innocent female, it would be expressed in the conduct of the Parliament of this country, in making the punishment so severe. As it is, I have some discretion left, although I must say that very act of Parliament has caused me

Another remedy I have to suggest, with the same class of criminals, is vegetable diet, cooked in the best manner. I find that there is less crime amongst animals fed, or that live upon vegetable food, than those animals that live upon animal. It is even a remarkable fact that there is less immorality and crime in those countries where the inhabitants live on the vegetables and fruits that nature supplies them with, than the countries where the inhabitants chiefly live upon animal food and luxuries; and I have myself found a higher degree of morality amongst those persons who chiefly live upon vegetable food and avoid the use of all stimulants. It is well that everyone should know something about diet. For example, all should understand that the grass or any other food that the cow eats to-day is beef to-morrow, which beef when eaten by man, soon becomes part of the man who has eaten it; so that the man of to-day is part of the grass which the cow ate two days before. Looking back upon the history of cannibals, it shows how much *diet* changes the characteristics of men, certainly,

to have a doubt as to whether or not I should exercise that discretion under the law that now exists, and declare that during the term of imprisonment you should, under the supervision of the warden of the penitentiary, be whipped more than once, in such a manner as the law contemplates. I do not wish to hurt your feelings further (if feelings you have), but the very first thing you do thank Almighty God that on that fatal night you were largely unsuccessful in what you intended to do. Remember, if you were successful you would have been standing here to-day, or elsewhere, your life forfeited to the violated laws of your country. If you have not succeeded in that dreadful attempt at a heinous crime, it is only because, in the providence of Almighty God, by the unskillful administering of the dreadful drug you took with you, you did not effect your purpose and kill that innocent and helpless girl. The sentence of this court is that you, Israel McLaughlin, for the crime of which you are charged, and of which you have been convicted, be imprisoned in the penitentiary for the remainder of the term of your natural life, and that during that time you be kept at hard labor.'

"The prisoner's countenance fell after the sentence was delivered, and he was quickly removed to the jail. He informed a reporter that he contemplated a sentence of about seven years."

That the sentence of the judge was just, under the circumstances, there can be no manner of doubt. I saw, forty-nine years ago, a low teratological fool hung, in Ireland, for the crime of rape upon a middle aged woman. Instead of placing this man in prison for his life, would it not be better to make him a eunuch, and let him go and earn his bread? The country would not be at the expense of supporting him all his life.

It appears as if the same treatment would be the best for Sir Charles Dilke, and all such women as Mrs. Crawford. As I have said over and over again, we want a great change in the criminal law. Let all criminals be treated as fools or maniacs.

by changing, chemically or otherwise, their physical organization. Therefore there would be a change in the function and phenomena or force, of the matter, as the matter was reproduced, from digesting the body of a man, pig, cow, vegetable or fruit; for it is a fact, that all matter is one and indestructible, only differing in degree. These are facts taught to us by physical science, or natural philosophy.

And why is it that we are so very ignorant of all diseases, or the cause of them, that the animal man is so subject to, which renders mankind as miserable in this world as are any of the lower degree of animals, even more unhappy, at least as far as we know? I can conceive no reason but because of our ignorance of nature's laws, and living, both ignorantly and otherwise, in disobedience to them. Therefore we have the right to hope and believe that when the human race, through physical science, comes to know nature's laws, it will be healthy, moral and happy.

Within the last twenty years there are diseases taking place, or diseases only diagnosed, which are astounding to the old medical practitioners. One is disease in the young female generative organs, particularly in the richer class of society. A large portion of specialists are now employed in treating these diseases, which old men, fifty years ago, never heard of. I speak particularly of enlargement of the ovaries from some cause, which sometimes tends to insanity. I believe from what I have seen, that as a rule, where sexual desire is fully gratified the disease is rare, but where such desire is increased and not gratified, the disease is to be found. Now, in the present day, this exciting of sexual desire, in this class of females, is due to the fact that there is a familiarity between the sexes that is not now condemned which was, in the past, condemned in all grades of society. The remarks I have made are because of surgical operations demanded in the present day, and the knowledge I have obtained as an alienist.

The next diseases I wish to make a few remarks upon are the diseases from alcohol. I will not go largely into the subject in this paper, but just make a few practical remarks that will tend to improvement in the social order.

Since I was a boy, like all other men, I have been acquainted with inebriates, and as a rule, they were not very immoral men, and rarely criminals. I seldom saw one of them insane, although I have occasionally seen one become the victim of delirium tremens, and some die of it. Those that I most particularly speak of were men of high social standing—great men of business—very many of them professional men. Sometimes they were afflicted with gout, but as a rule they lived to an old age. What do I mean by inebriates? I mean a class of men who ate a hearty dinner at seven o'clock in the evening, and every night went drunk to bed; got up at an early hour the following morning, but never tasted one drop of any sort of alcohol during the day till evening came again. For some years I have no personal knowledge of any of those inebriates. I don't believe they are at all as numerous; but they are supplied by a class of men who never get actually drunk, although they drink more or less alcohol, in some form, from the time they rise in the morning till they go to bed at night. They never even drink a large quantity at a time, yet many of them become alcoholic maniacs, suffer the most fearful torture, and not unfrequently die from the effects

I do not say that all this class are immoral criminals, but most decidedly the majority of them are. From this class there are a large number of condemned criminals; and from this class, and the inebriates, society is afflicted very frequently with teratological fools. This heredity is sometimes due to the law of atavism; and from both of these classes we have the unfortunate dipsomaniac, who only seeks for alcohol when he gets an attack of mania. From peculiarity of constitution some get an attack of alcoholic mania from habitual "nipping," without ever

becoming inebriates. In all these cases the reflex action of the nervous system suffers terribly, and sometimes acute myelitis presents itself, with its evil consequences. Of course there are other causes for this disease.

I have made this paper longer than I meant when I began it. I have written it for the advancement of natural philosophy and for the good of the human race. I have nothing to say against the true metaphysical scientist, or supernatural philosopher, who is generally, also a physical scientist or natural philosopher. But I warn society against the pseudo-philosophers, who wish to make society accept them as supernatural philosophers, and thereby continue the curse that such false philosophers have been to the human race.

For the past twenty-five years I have studied the physiology of matter, particularly of organic animal and vegetable matter, more particularly still, to subjective mind matter. From my study and observation, I have come to the conclusion that the human race, as a whole, are miserable and unhappy, because the large majority are immoral, and a very large portion both immoral and criminal, and that this great evil is due to man's physical organization, and that all immoral criminals are either teratological fools to a greater or lesser degree, or insane from pathological defect to a greater or lesser degree; and I maintain that the few of the human race who are purely moral and non-criminal are such because their physical organizations are physiological. Therefore I hold that the duty of all, particularly of those in authority, is to use all possible means to physically improve the human race, by having education based upon physical science or natural philosophy. I raise no objection to the *true* metaphysical scientist, or to his works as a supernatural philosopher. He knows his duty. I speak only as a physical scientist or natural philosopher, and as such I say, once the human race has so far developed as for males and females to become physiological, there will be nothing for Chris-

tianity to fear from a moral, happy and contented people.

In conclusion, I must say, never was there such an outward and visible sign of religion all over christendom, as in the present day; and never was there such positive proof of the great increase there is of folly and insanity, and consequently an increase of immorality and crime, which is proven by the great increase there is in all christendom, of hospitals, insane asylums and prisons every day, not for charity, but because they cannot be done without, and all this is due to the opposition there has been, and is, to nature's laws, from the pseudo-metaphysicist, who has made so many believe he and his fellows were true supernatural philosophers.

I hope my reader has discovered the physical fact that,

“Large fleas have little fleas, and other fleas, to bite them;
And little fleas have other fleas, and so on, *ad infinitum*.”

Raynaud's Disease and Insanity.*

By JAS. G. KIERNAN, M. D., Chicago, Ills.,

Late Medical Superintendent Cook County Hospital for Insane; formerly of the
New York City Asylum for Insane.

THE phenomena known under this title are thus described by Dr. Musser:† “A vasomotor affection, which is characterized by tonic spasm of the blood-vessel, causing local syncope, local asphyxia, and gangrene. In local syncope the parts affected are ‘dead,’ numb, cold, pallid. In local asphyxia the parts are blue or mottled, lower in temperature than normal, and the seat of intense, burning pain. Both of the circulatory disturbances may be attended by diminished tactile sense and local sensibility, and they occur in paroxysms, which may terminate either in the restoration of the parts to their normal condition, or the one (local asphyxia) may end in scleroderma. These phenomena occur not only in paroxysms, often in quick succession, but also are marked by distinct intermittency, and the entire disease is frequently characterized by pronounced remissions. Gangrene occurs only as a sequence of the conditions just described, and may be described as dry gangrene or mummification, as the form resembling frostbite, and in dry, hard plates or parchment metamorphosis of the dead tissue. It is generally attended with much pain, but is not the cause of septic complications or of death. Local syncope frequently occurs independently of sequential changes. It may be due to peripheral impressions as seen in the action of cold, or to central functional excitation.

Local asphyxia likewise is observed alone in all grades, from the mottling that is seen in delicate children exposed to cold, and the mottling which has been

* A series of articles on Trophic Changes in the Insane.

† Cincinnati Lancet—Clinic, April 3, 1886.

described as pathological, to the cyanosis that attends heart disease or goes with scleroderma. The grouping together of these vasomotor phenomena, their occurrence in symmetrical parts of the body, and in the sequence stated above, are, however, the essential features of Raynaud's disease. In addition to other features of this curious disease, it may be stated that it occurs most frequently in females, at an early age, and after a previous debilitating disease, or in the course of some diathetic ailment." Most alienists will readily recall the fact, that all these phenomena have been observed in hebephrenial stupor, in stuporous insanity, in melancholia attonita, in katatonia and in certain cases of paretic dementia. In 1878* I called attention to a marbling of the extremities and to a gangrenous condition of the extremities, as a result of paretic dementia. In nearly all the stuporous conditions, whether the stupor be that of stuporous insanity, or resulting from absorption in a delusion, as in paranoia, or melancholia, or occurring during hebephrenia, or katatonia, or stuporous epilepsy, or paretic dementia, manifestations of the Raynaud disease type are present. The pain, due to the disease, felt by the melancholiac, paranoiac, hebephreniac, paretic dement or epileptic, forms the basis of a persecutory element in a delusion. The disease is exceedingly frequent in the stupor, which sometimes succeeds cases of acute mania. In four of such cases which came under my observation in the Cook County Insane Hospital, and in ten which I observed at the New York City Asylum for the Insane, the condition on the feet proceeded to gangrene, and when the patients recovered, as they all did, one or more toes were injured. In such cases, amyl nitrite, by the nose, and quebracho hypodermatic injections have been of service. The condition disappears on recovery, but in certain cases may lead to blood-poisoning secondary to gangrene.

* *Journal of Nervous and Mental Disease*, April 1878.

PROCEEDINGS

OF THE

FORTIETH ANNUAL MEETING OF THE ASSOCIATION OF MEDICAL SUPERINTEND- ENTS OF AMERICAN INSTITUTIONS FOR THE INSANE.

The Fortieth Annual Meeting of the Association of Medical Superintendents of American Institutions for the Insane was called to order at the Phoenix Hotel, Lexington, Kentucky, by the President, Dr. Orpheus Everts, at 10 o'clock a. m., Tuesday, May 18, 1886.

In the absence of the Secretary, the President requested Dr. S. S. Schultz to act in his place *pro tem*.

The minutes of the last meeting were read and approved.

The following members were present during the sessions:

H. E. ALLISON, M. D., Assistant Physician, Willard Asylum, Willard, New York.

W. J. BLAND, M. D., West Virginia Hospital for the Insane, Weston, West Virginia.

G. ALDER BLUMER, M. D., Assistant Physician, State Lunatic Asylum, Utica, New York.

EDWARD C. BOOTH, M. D., State Asylum for the Insane, Morristown, New Jersey.

JOHN R. BROWN, M. D., Assistant Physician, Indiana Hospital for the Insane, Indianapolis, Indiana.

P. BRYCE, M. D., Alabama Insane Hospital, Tuscaloosa, Alabama.

JOHN H. CALLENDER, M. D., Hospital for the Insane, Nashville, Tennessee.

MICHAEL CAMPBELL, M. D., East Tennessee Hospital for the Insane, Knoxville, Tennessee.

H. F. CARRIEL, M. D., Illinois Central Hospital for the Insane, Jacksonville, Illinois.

F. H. CLARKE, M. D., Assistant Physician, Central Kentucky Lunatic Asylum, Anchorage, Kentucky.

G. F. COOK, M. D., Oxford Retreat, Oxford, Ohio.

- A. N. DENTON, M. D., State Lunatic Asylum, Austin, Texas.
ORPHEUS EVERTS, M. D., Cincinnati Sanitarium, College Hill, Ohio.
C. M. FINCH, M. D., Columbus Asylum for the Insane, Columbus, Ohio.
THEO. W. FISHER, M. D., Boston Lunatic Hospital, Boston, Massachusetts.
EUGENE GRISSOM, M. D., North Carolina Insane Asylum, Raleigh, N. C.
W. D. GRANGER, M. D., Assistant Physician, Buffalo Asylum for the Insane, Buffalo, New York.
GERSHOM H. HILL, M. D., Hospital for the Insane, Independence, Iowa.
H. M. HURD, M. D., Eastern Michigan Asylum, Pontiac, Michigan.
O. R. LONG, M. D., Michigan Asylum for Insane Criminals, Iowa, Michigan.
ANDREW MCFARLAND, M. D., Oak Lawn Retreat, Jacksonville, Illinois.
C. A. MILLER, M. D., Longview Asylum, Carthage, Ohio.
JAMES D. MUNSON, M. D., Northern Michigan Asylum, Traverse City, Michigan.
GEO. C. PALMER, M. D., Michigan Asylum for the Insane, Kalamazoo, Michigan.
T. O. POWELL, M. D., State Lunatic Asylum, Milledgeville, Georgia.
H. K. PUSEY, M. D., Central Kentucky Lunatic Asylum, Anchorage, Kentucky.
H. M. QUINBY, M. D., Asylum for the Chronic Insane, Worcester, Massachusetts.
A. B. RICHARDSON, M. D., Asylum for the Insane, Athens, Ohio.
W. R. RODES, M. D., Lunatic Asylum, No. 1, Fulton, Missouri.
JAMES RODMAN, M. D., Western Kentucky Lunatic Asylum, Hopkinsville, Kentucky.
S. S. SCHULTZ, M. D., State Hospital for the Insane, Danville, Pennsylvania.
H. P. STEARNS, M. D., Retreat for the Insane, Hartford, Connecticut.
B. W. STONE, M. D., Assistant Physician, Western Kentucky Lunatic Asylum, Hopkinsville, Kentucky.
GEORGE T. TUTTLE, M. D., Assistant Physician, McLean Asylum for the Insane, Somerville, Massachusetts.
J. M. WALLACE, M. D., Asylum for the Insane, Hamilton, Ontario.
E. T. WILKINS, M. D., State Asylum for the Insane, Napa, California.
F. S. WHITE, M. D., Assistant Physician North Texas Insane Hospital, Terrell, Texas.

Also, Foster Pratt, M. D., President of the Trustees of the Michigan Asylum for the Insane, Kalamazoo, Michigan, and W. G. Vinton, President of the Board of Trustees of the Eastern Michigan Asylum, Pontiac, Michigan.

On motion of Dr. Grissom, the physicians of Lexington and vicinity were invited to attend the meetings of the

Association. The same invitation was also extended to the representatives of the press.

Dr. Callender introduced to the Association W. La Rue Thomas, President of the Board of Commissioners of the Eastern Kentucky Lunatic Asylum, near Lexington.

The Secretary *pro tem.* read letters from Drs. Curwen, Earle, Godding, Buttolph, Nichols and Kilbourne, conveying their regrets at not being able to attend the meeting of the Association.

Mr. W. LaRue Thomas invited the Association to a reception in the Hotel Parlors, from three to six this afternoon, to be given by the Commissioners of the Eastern Kentucky Lunatic Asylum; also to an old-fashioned Kentucky barbecue, in the Asylum Grounds, on Thursday afternoon. Referred to the Committee of Arrangements appointed at the last meeting.

The President announced the following Standing Committees:

ON NOMINATIONS—Drs. Palmer, of Michigan; Callender, of Tennessee, and Bland, of West Virginia.

ON TIME AND PLACE OF NEXT MEETING—Drs. Chenault, of Kentucky; Carriel, of Illinois, and T. W. Fisher, of Massachusetts.

* TO AUDIT THE ACCOUNTS OF THE TREASURER—Drs. Bryce, of Alabama; Denton, of Texas, and Campbell, of Tennessee.

ON RESOLUTIONS—Drs. Wilkins, of California; Powell, of Georgia, and Stearns, of Connecticut.

On motion, a recess of fifteen minutes was taken by the Association.

On reassembling, Dr. Palmer, of the Committee on Nominations, requested further time for the consideration of their report, which was granted.

Dr. Palmer introduced Dr. O. R. Long, Superintendent of the Michigan Asylum for the Insane Criminals, Ionia, Michigan.

Dr. Chenault, from the Committee on Arrangements, introduced Dr. F. S. White, Assistant Physician of the

North Texas Insane Hospital; Dr. John R. Brown, Assistant Physician of the Indiana Hospital for the Insane, Indianapolis; Dr. George T. Tuttle, Assistant Physician of the McLean Asylum, Summerville, Massachusetts; Dr. G. Alder Blumer, Assistant Physician of the State Lunatic Asylum, Utica, New York, and Dr. W. D. Granger, Assistant Physician of the Buffalo State Asylum for the Insane, Buffalo, New York.

The President then read his address.

On motion of Dr. Callender, it was

Resolved, That a copy of the address be requested for publication by the Association.

On motion, the Association adjourned to 2.30 P. M.

The Association was called to order at 2.30 P. M., by the President.

Remarks as to the order of business were made by Drs. Chenault and Rodman.

Dr. Hurd then read a paper on "Data of Recovery from Insanity."

DR. WILKINS: Mr. President—I am afraid that while I am one of the old men of the Association, I am one of the young members. The fact is, this is only the second meeting I have ever attended, and the only time I have attended since I have been a member of the Association.

I regret that my confidence in the restoration from insanity is very greatly diminished with the experience I have had during the past ten years; and hence if any superintendents present have read my reports, they have probably noticed that my discharges have been of improved cases, rather than recoveries. I find they are much more liable to recur than I once thought, and I am, therefore, much more guarded in calling a patient restored than I was formerly. I do not believe that more than twenty-five in a hundred will get well, although I know you have put it to-day at forty. Such has been my experience, and that of other superintendents I have in mind, has been as I have stated. The longer I have charge of the treatment, the less confidence I have in recoveries. Like the gentleman who has just read the paper, I think it is very difficult to determine exactly when a person has recovered—sometimes because of the difficulty of comparing the patient with himself when he was in his normal condition. He may appear well to the superintendent, and free from delusions and hallucinations and other false ideas, apparently; but there

is something about the manner, which may be natural, that we do not understand; whereas his relatives and intimate acquaintances might be able to see that he was not exactly in a normal condition. We discharge them as recovered, and perhaps in a few months or years they are sent back to us again, with a second attack.

I have no rule to establish upon the subject, and merely make these remarks, because I have been called upon to do so.

DR. STEARNS: Mr. President—I do not like to have this interesting subject go by without fuller discussion. I have been very much interested in Dr. Hurd's paper, and I may say I have been a good deal interested generally in this subject of recoveries. I am inclined to think that we have in insanity no special standard of what is to constitute a recovery, any more than we have in other forms of disease. I have been inclined to think that if any organ of the system passes through what we consider a form of systematic disease; for instance, if the lungs have been affected with pneumonia, it is quite doubtful if they are ever afterwards in as perfect a condition as they were before they passed through that course of inflammation: if an individual passes through a peritonitis or an enteritis, it is questionable whether the organs affected are ever restored to the perfect condition they were in before the attack, and in no degree more liable to subsequent disease. So, if we regard insanity as a disease of the gray matter of the brain, or of that portion of it that is comprised in blood-vessels and cells and connective tissue, and if there is actual structural change that causes the insanity, I do not know that we have ever a right to suppose that those cells, or the minute blood-vessels are restored to absolutely as perfect a condition as they were in before they were affected. I am inclined to think that almost any organ, which has passed through a systematic form of disease, is more likely afterwards, perhaps always, under exciting causes, to be again affected than it was originally. And yet, granting this is so, shall we say that the person never recovers from pneumonia or from typhoid fever? Shall we say that he never recovers from insanity, because he is more likely to have another attack of it from exciting causes, than he was before?

I do not believe that this is a proper basis on which to form a standard of recovery. It seems to me that we have a right to assume that the man recovers from insanity, as we do that he recovers from bronchitis, or from pneumonia, if the functions of that portion of the system, which has been affected, are performed as they were accustomed to be performed, so far as we can judge and so far as the friends can judge, before the attack. The mere fact that he may have another attack of insanity after one or two, or five years, it seems to me, ought not to debar us from reporting that he has recovered. Let it be understood, that what we mean by recovery is, that the patient is restored to a condition of living with his friends, and to being able to perform his or her accustomed duties. I think Dr. Hurd's paper fairly and justly describes what we may call a recovery without being too particular, and saying that the patient should be so well that he would not have another attack of insanity in two or five years, or any other time.

There is another point to which Dr. Hurd's paper relates. I do not know whether I understood him correctly or not, in saying that he had

had general paretics recover, or that he thought they might recover after an epileptic or parietic seizure.

DR. HURD: Yes, sir, I said there was one such case that had been under treatment.

DR. STEARNS: My own experience in general paresis has been such, that I should hesitate exceedingly to think a man, whose brain was so far affected as to have epileptoid or parietic seizures, had fully recovered from the disease we call general paresis. I have never myself seen any recovery; in fact, I am accustomed to give an unfavorable prognosis in cases of general paresis, where they have reached that stage of the disease.

In cases where the other symptoms are unequivocal, or some of the symptoms are, I have always given an unfavorable prognosis, and I have never known a case to get well; and I have supposed my experience was in accordance with that of other members of the Association. I am exceedingly interested in such a fact as that related by Dr. Hurd, and I think it may lead us, if we could have a few more of them, to look more favorably, perhaps, on the issue of this form of disease. I believe the late Dr. Tyler used to hold the opinion, that if the cases of general paresis were to be seen sufficiently early—in the very beginning, there was reason to expect favorable results from treatment; but of course, as superintendents of asylums, we never see these cases early, or very rarely. I have never seen them until the disease has so far advanced, that it is beyond a hope of favorable results.

DR. HURD: The case of paresis which I had in mind and referred to in the paper was that of a man who came to the institution at Pontiac six or seven years ago. He showed the characteristic gait of the disease. He had inequality of pupils, extravagant delusions and a sense of well-being. The course of the disease bid fair to be a rapid one downward. His wife visited the institution and received the usual unfavorable prognosis. I am not sure but she went seriously to work to hunt up a successor. I know her interest in him began to wane from that time. He had at least one epileptiform seizure. He afterwards burnt his foot upon a radiator in his room. The amount of injury was not great, but the shoe pressed on it; his foot was slow in healing, and he finally required to be placed in bed. A slough developed upon his heel in consequence of pressure. He was confined to his bed two or three months. He became very much emaciated on account of the exhausting effects of the slough, which finally came away, leaving an excavation nearly as large as the whole heel. After a time he got up, and his mental condition was found very much better. I expected that he would sooner or later have another epileptiform seizure and go down rapidly; but he got so much better that his wife decided to take him home, contrary to my judgment. Although he was free from delusions, and apparently very comfortable, I gave it as my opinion, that he would never be able to stay at home. He had formerly owned a large livery stable. After his return home he visited this stable occasionally in lack of other occupation, and showed so much knowledge of the work that the proprietor engaged him as a foreman. During the past five years he has discharged the duties of foreman of this stable, and is thus supporting his family. He has written pleasant letters to the

institution. On two occasions he has visited the asylum. He has not seemed upon these visits to be a man of great mental activity. He has, however, been able to perform his daily duties, which include the keeping of accounts and collection of bills. The man for whom he works says he is accurate, and a good manager of the stables. His wife says that he is a better-natured man than he was originally.

The other day I received a letter from the wife of a patient in an advanced stage of dementia, stating that she had lately put her horses into the stable where this man was at work, and had found him so well she was encouraged to hope that her own husband would recover in a similar manner. If he had suffered from mania or melancholia, and had remained away from the institution five years, and had taken care of himself, we might safely class him among recovered patients.

This reminds me that two years ago, while at Washington, Dr. Godding told me of a case of general paresis in a negro which had reached the third stage of the disease. The negro had the good fortune to catch small-pox, in an exceedingly virulent form, and for a long time his life was despaired of; but when he did get well, he had apparently recovered from the paresis, and had been well ever since. Dr. Savage, of the Bethlem Hospital in London, told me of a case where paresis had reached the stage of parietic seizures. The patient had severe seizures, and his mind was apparently much weakened. He had even become dirty in his habits.

DR. RODMAN: Did you mean epileptoid?

DR. HURD: Yes, sir.—It can hardly with accuracy be called an epileptoid seizure, because it often presents few of the characteristics of an epileptic seizure. It may vary widely from genuine epilepsy. This man, at this stage of the disease, developed an immense carbuncle on the back of his neck. He lay at death's door for many weeks, but finally recovered from his carbuncle and also from his paresis. I was told that he had been at home for a number of years, engaged in his business as before, and apparently a well man. Dr. Peters, of the Asylum at Gheel, told me of two cases of paresis in the stage of dementia following parietic seizures, where apparent recovery had resulted from extensive carbuncles; in one case upon the head, and in the other upon the back of the neck.

I believe in the case which I first reported, that the efficient agent in curing the paresis was the sloughing of the heel. I am also of the belief that if we could arrange to make an extensive slough in every case of paresis, we would have more recoveries.

DR. STEARNS: In these cases, then (the Doctor's and the others he mentions), there was what might be considered the development of another disease in connection with the paresis. I believe it is a rule that persons recover from some forms of disease through the development in the system of another disease; and doubtless the injury the Doctor's patient received, acted in some measure or degree as the carbuncles did in the other cases. But what I referred to more particularly in my former remarks was recovery in the ordinary forms of general paresis in consequence of remedial measures of treatment. I have under my own observation a case which has been pronounced one of general paresis, and the patient had had what the doctor had improperly called a parietic seizure, and in consequence an

unfavorable prognosis had been given in the case. He has passed into a condition of what appears to be chronic mania. He had had some of the mental symptoms of the general paretic, from some of which he recovered, and had what I have never noticed in any other of my cases, a remarkably good memory—as good as it ever was—and great quickness of physical activity. He has passed from that condition, as I said, into one of chronic mania. I have, however, supposed that the diagnosis in that case was wrong, and that the seizure, which I did not myself see, was not truly a paretic seizure.

DR. CARRIEL: I rise, Mr. President, because it is the fashion on our side of the house to say something, though I do not think I can say anything of particular interest to the Association. I wish, however, to express my appreciation of Dr. Hurd's paper, which interested me very much. While the Doctor was reading his paper a few cases came across my mind in regard to recoveries after a long period of insanity.

I have not had in my experience a great many of these cases, but a sufficient number to lead me to agree with Dr. Hurd in the belief that we may hope for recovery after the usual period of curability, as we ordinarily look upon it, has passed. I have in my mind one case—I presume Dr. McFarland will remember the name—a brother of a clergyman; a case of melancholia of six or eight years' duration. He was discharged as incurable by order of the trustees; he seemed to get along in the institution very well; was quiet, tidy and orderly, and his mental operations, when you came to draw him out were reasonably active, but he was rather depressed; read considerably, was not inclined to converse much, and when his friends came to visit him he seemed particularly cast down; much worse at these times than ordinarily. He was finally discharged, as I have said, and went home. Upon coming to his house he met his wife, flew to her, embraced her, and cried out: "Is it possible that you are alive?" Now, from that time he appeared entirely rational. This was twelve or more years ago, and since then I have heard from his brother a dozen times, and he and his friends have always reported the patient as well and doing business in his usual manner. A few years ago I had a patient who belonged in Illinois, but was taken to an institution in the east. His friends were persons of considerable means, and were somewhat proud of spirit. He was taken east to travel about with the hope that he might improve, but he got worse and was taken to an institution in New York State, and remained there sixteen months. Then he came back to Illinois and remained at home just about a week. It was found necessary to take measures to restrain him, as he was very depressed and suicidal. In Illinois the law requires that the friends of patients shall first make application for their admission, and in accordance with this they telegraphed, asking me if I could receive a case of such-and-such duration—I think it was two years. I declined the case, but they had already started with the patient, and he was brought to the hospital. His father came with him, and our sympathies were so excited by his grief and sorrow we were induced thereby to change our decision, and we received the case. The patient was considerably debilitated and very melancholy, but after a while he began to improve in general health and seemed more

natural in his mental condition; was more cheerful, more talkative. He went on this way, and in the course of about five months he made a good recovery. This man is in Minneapolis to-day, doing a large real estate business. He was a man of means then, and in the course of the four years he has been in Minneapolis, as I was told by a relative of his a day or two ago, he has accumulated quite a fortune.

As to recovery from insanity generally, it does seem to me that perhaps under Dr. Earle's repeated reminders, we are coming to the idea that very few people do get well. Of course, if you are to take all cases, as they come to a hospital, the percentage of recoveries is quite small; I think we discharged twenty-five per cent. recovered in our last biennial period, that is, of all cases admitted; but if you take cases of insanity where the disease has not existed longer than three months, for instance, cases where there is no organic disease or no evidence of it, it does seem to me that sixty or seventy per cent. is not an extravagant figure for recoveries.

DR. HILL: I have nothing to add of profit to what has been said; but I am disturbed in mind on this question of recoveries, when I come to compare my own efforts with those of some other institutions. Two weeks ago I was stirred up by the Governor of our State. He said he had heard that there are more recoveries in the county institutions than in the State institutions of Wisconsin; and so I have come to the conclusion, if we take a given list of discharges and hand it to the gentlemen present, by going over each case and the cause and the circumstance of the discharge, perhaps no two of us would make out the same number of recoveries. It is possible that the discrepancy might be so great, that one superintendent might make four times as many recoveries from the same list as the one who made out the fewest. I am inclined to doubt very much about the propriety of reporting patients as recovered, unless I know how they behaved after they reached home. They may appear very well to me when they leave the institution, and they may remain at home the rest of their lives; and yet, unless I can see them a few years afterwards, or unless somebody who was competent to decide in regard to their mental condition, reports their entire restoration, I do not feel sure of their recovery, although they remain at home. I think that is the trouble in the State of Wisconsin. The members of the State Board of Charities are inclined to announce as recovered, all insane persons who leave the county asylums and return to their relatives and remain with them. That is probably their way of determining whether patients have recovered or not. In contrast with that conclusion, they have had the prognosis of the superintendents of the two State institutions, who have sent these individuals from the State institutions to the county institutions as incurables. On the other hand, I find that we, in our own institution, send out very many as improved, very few as recovered, and very few as unimproved by treatment. Most of those who go out unimproved, were more or less demented when they came to the institution. But the younger superintendents, I presume, like myself, want to know whether we are doing good work or not, and when we compare our tables with the tables in the reports of other institutions, and we find our death rates are very large and our number of recoveries is very small, we think we are not so skillful as medical staffs at other places.

DR. SCHULTZ: It is claimed by a French author, that there are two forms of general paralysis, the true and the spurious, the latter the result of syphilis or intemperance in the use of alcoholic stimulants. He asserts that the spurious is curable. This has not been referred to by anyone in this discussion. Has any member of the Association present had an experience to justify this claim?

DR. EVERTS: Will any gentleman respond to Dr. Schultz's question?

DR. HURD: I have been familiar with the essays which appeared in *Annales Medico-Psychologiques*, on what is called pseudo-paresis, as distinguished from true general paresis; but in my experience I have not been able to find the form of disease which this French author considers pseudo-paresis. I think that all who have to do with cases of syphilitic insanity and of paresis from syphilitic origin, have reason to say that although we may in very many instances connect the paresis with syphilis, we are never able to connect a cure with anti-syphilitic treatment. And I think the reason, if we look at the matter carefully, is very evident. When syphilitic insanity presents a train of symptoms which resemble paresis, we do not, in our treatment, deal with a poison which is acting primarily upon the system, but with the results of a diseased process. The syphilitic poison has already produced serious organic incurable brain disease; and I have no question but that in a vast majority of instances, where paresis has become well marked—where the disease has become fully and thoroughly developed—I have no doubt, I say, that the downward course of many of these cases is hastened by ill-considered and injudicious attempts at anti-syphilitic modifications. I presume you have all heard of the case of the actor McCullough, which was generally considered one of paresis. He was removed by a Philadelphia physician from the Bloomingdale Asylum, and taken to Philadelphia for treatment, on the ground that a great error in diagnosis had been made—that he suffered from a form of blood-poisoning—I believe the newspapers called it that, without stating that it was syphilis. In other words, he had syphilitic paresis; and the newspapers declared that if his case had been properly treated he would have recovered. You know the result. The physician promised to cure the patient, provided "he did not run him down." His efforts were not crowned with success. If this man had not been removed from Bloomingdale, he would have probably lived many months. I think his death was hastened by injudicious anti-syphilitic medication, and I think this is the experience of every physician who has to do with paresis of a syphilitic origin, and attempts to treat it with anti-syphilitic remedies.

DR. RODMAN: Mr. President—I cannot allow the opportunity to pass without expressing my appreciation of the paper just read. I think it an excellent one. It certainly adds to my little stock of information. My method of arriving at the fact of recovery is sufficiently simple. I endeavor to ascertain if the patient is still laboring under any form of physical disorder, and its nature. Then to see if any delusion remains; but above all, to learn if he recognizes and acknowledges the fact of his previous mental unsoundness.

In accounting for the recurrence of insanity I take it that Dr. Stearns has struck the key-note. I believe, with him, that there are few cases

of severe assaults upon vital organs from which the subject recovers with absolutely the same powers of resistance to similar attacks that he previously enjoyed, and this notably in most forms of cerebral troubles.

On motion of Dr. Chenault, adjourned to 8 P. M., to attend the reception by the Board of Commissioners of Eastern Lunatic Asylum.

The President called the Association to order at 8 P. M.

On invitation of the President, Dr. Pratt made some remarks in the further discussion of the subject treated in his paper of two years ago.

DR. PRATT: I have not much further information to present on that subject. I have been continuing my studies, and as yet lack certain statistics. I will explain in a moment. Those who have done me the honor to read the paper that I presented two years ago, in regard to the increase of insanity in the United States, will remember that I called attention to the fact that the foreign-born population of the United States, constituting one-eighth of the entire population, furnished one-third of all the insane of the United States; that that was a fact for serious consideration when taken in connection with the further fact that they also furnish one-third of all the paupers and one-third of all the criminals. I also called attention to the probable fact, that heredity would cause a very much larger proportion of insanity among the native-born children of foreigners than among the children of our own native-born. But the census of 1880 furnished no basis upon which to determine the amount of insanity, or the proportion of insanity found among the native children of foreign-born as compared with the native children of native parents. Since then three important State census have been taken, and I have the results in the case of two. My own State is yet lacking. I expected to have come here supplied with the statistics of my own State. Advance sheets upon the foreign and native population were promised me by the proper authority of our State, but he was unable to give them to me before leaving. But I will state in general terms what the information already given me sets forth. While these State census not only confirm the astonishing result as shown by the Federal census (an unduly large proportion of insane from our foreign-born population) it confirms even beyond my boldest conjectures the immensely large proportion of insanity among the children of foreign-born parentage as compared with our native-born children of native parents. When we consider the fact that the census of 1880 shows in the Northern States and Territories, including the District of Columbia, that the native-born children of foreign-born parents out-number the children of native parents by a million and a half, the extent of that extraordinary tendency to heredity becomes very serious.

When my paper was first presented, I called attention to the fact then

which I know now to be a fact, but of which I had no particular proof except newspaper statements and the information I derived from intelligent emigrants themselves and intelligent naturalized foreign citizens who were traveling back and forth, I called attention to the fact that the dumping of their refuse population—the dependent population of the municipalities of Europe—upon us had become a system, a system that began with the potato rot famine in Ireland in 1847 and 1848. While the Federal census of 1850 shows no more insanity among the foreign-born element than it does among the native-born element, in 1860 there was a manifest increase among the insane of the foreign-born element. In 1870, while the foreign-born population had increased during the decade only about thirty, their insane had increased one hundred per cent.; and from 1870 to 1880, while the foreign-born population had increased only about twenty per cent., the insane, found among the foreign-born had increased one hundred and fifty per cent.

Understand, gentlemen, these figures are all derived from the census statistics. In order to account for this astonishing increase, I was impelled to inquire the cause, and found that foreign municipalities were engaged in a system of dumping upon us their dependent population. This was called in question, especially by the Board of Foreign Emigration of the State of New York. I have since accumulated some proof on that point, proof that is incontrovertible—it cannot be controverted by anybody, however much they may be interested in continuing the present state of things. I have not the proof here I have alluded to, that is the documentary proof—but I have some matters which I picked up recently, and some of it, and the most important of it, since the riots in Chicago.

I will read an extract from the *Pall Mall Gazette*, of May 5th. You all understand, gentlemen, the rank and standing of that paper in England.

The *Pall Mall Gazette*, commenting on the anarchist riots of Chicago and Milwaukee, says that "Europe, having adopted a system of exporting paupers to the United States, is primarily answerable for the troubles;" and, secondly, "that America has shown fatal kindness in receiving these paupers, and is now reaping the results of her folly in trying to make American citizens out of the scum of Europe." There are other statements in the same article to the same effect, but upon another subject. I will confine my extracts simply to the one we have under consideration.

The newspapers in New York city have become aroused. I have here an extract from the *New York Commercial Advertiser*, a leading editorial on the 7th of May: "It behooves us, at this stage of our history, to consider the propriety of protecting ourselves against the immigration of alien enemies, who are enemies, not alone to this country, but of society and civilization, of law and order, of peace, industry and human progress. It is time for Congress to consider the question of so regulating immigration, that foreign countries may no longer make a Botany Bay of America, and throw upon us the task of dealing with their outcast criminals." One of your own Kentucky journals, *The Louisville Courier Journal*, I think of the 8th inst., says: "The days of Know-Nothingism are in the past. The duty of the present with reference to this matter, is not the prohibition of foreign immigration, but a regulation of it, and discrimination in regard to it. We

have been the dumping ground of the refuse of Europe long enough. It is time for us to decide that we will only receive such immigrants within our borders, as were honest at home, and come to make honest citizens in America, and are competent to take care of themselves."

With the assistance which I have received in the agitation of this matter through the American Medical Association, this Association and the American Public Health Association, I have finally succeeded in getting a bill prepared and offered in Congress. It will not be passed at this session, but will be taken up, I think, for definite action, another session. But the bill does not go far enough in regard to these evils. I suggested some time ago, that expert examiners should be attached to every consular office in Europe and Asia—in every country, from which emigrants come to us—providing, that all proposing to emigrate to the United States, shall prove to proper authorities that they had never been convicted of crime, had never been paupers and never been insane; and when they had furnished such evidence, that the consul should be required to give them, as to a ship, "a clean bill of health," a permit to emigrate; providing also, that no emigrant vessel shall bring such persons to our ports, without such certificates; and if they do, that the uncertified immigrant shall be taken back at the expense of the ship. The bill before Congress provides that such examination shall be made on this side. It will, if made here, as you all know, be imperfect and difficult to regulate. The bill proposes that these examining commissioners be stationed at Portland, Boston, New York, Philadelphia, Baltimore, New Orleans and San Francisco. In my examinations, two years ago, I found that one hundred thousand emigrants came to the United States, in 1882, through Canada, landing at British ports and coming through by rail to Michigan, landing or crossing at Detroit and Port Huron. The bill will therefore come very far short of the purposes intended, because the commissioners of Baltimore, Boston and New York will know nothing of those who come to the United States, especially to the Northwest, through Canada.

Now, with the construction of the Pacific road along our northern border, the difficulty is going to be still greater. It can carry these defective persons, for example, to Winnipeg. It is but a short trip across to our territory, and there is very little or nothing to prevent an entrance anywhere along our northern frontier. We shall have serious difficulty if we attempt to deal with the trouble wholly on this side of the Atlantic.

I call upon you for assistance, as far as you have influence with your members of Congress; that you call their attention, when they come to act upon the bill, to the fact, that it is of the greatest importance that this inspection of emigrants shall be made at the consul's offices in Europe and Asia, or at whatever point people propose to start from; let them go to the nearest consul.

It is high time that we had come to the conclusion that American citizenship is a great privilege; but a privilege to be exercised not for our detriment, and for the advantage only of the taxpayers of European municipalities, but that we should adopt a system which will prevent European municipalities from sending to us their paupers, their epileptics,

their insane or their criminals. Reasons are innumerable, outside of the question of insanity, why this should be done. There is no Know Nothingism in it. We do not forbid immigration; we simply say that citizenship with us is a privilege, and we will take such as we like, or such as will do us no harm. There is no reason in the world why there should be among a proper class of immigrants any more insanity than among our own native population. The census of 1840 and 1850,—1850 especially, the census of 1840 was very imperfect—but the census of 1850 demonstrates that there was no more insanity among the foreign-born than among the native-born; but now, after these hundreds of thousands of paupers, insane and criminals have been dumped upon us, under the law of heredity we are able to calculate approximately what, thirty years hence, the result will be with their children born upon our soil, and native Americans by birth, as the natural result of heredity. The peculiar tendencies of their parentage will become apparent, not only to us as patriots, but as citizens and as taxpayers.

Now the burden of building and maintaining prisons for the criminals and poor-houses for the paupers, and the building and maintaining of insane asylums for the insane falls upon the States. But the States have no remedy; the States are powerless. They have the evil, but they have not the remedy. The remedy for the evil is with Congress. It has exclusive control of foreign immigration. We have to ask for remedial help through Congress, and for such action, if possible, as will be effective and will accomplish the desired result.

DR. WILKINS: Mr. President—This is a subject I am very glad to see brought to the attention of the Association. I read the paper, to which Dr. Pratt has alluded, with a great deal of interest, and have listened to his remarks to-night with redoubled interest. Occupying as we do, in California, the extreme limits of our country, this defective class, after having passed through the rest of the States, come to where they can go no further, and we are victims of the system which is being practised upon our country by foreign countries. I have long had reason to believe that there was a systematic organization for the very purpose mentioned by the gentleman in his remarks. So thoroughly was I convinced of that fact, that I have spoken to the members of Congress, whom I know, from California, asking them to support any measure that might be brought up for the purpose of correcting the evils to which we are subjected. Mr. Miller promised me he would do so, and asked me to prepare some facts upon which a bill might be drafted; but having learned that a bill was being prepared, or had been prepared for that purpose, I thought it unnecessary, as it would be brought before Congress by the gentleman having charge of the bill. Inasmuch as I will go to Washington in the course of a few days, I would like if the gentleman would inform me who has charge of the bill of which he speaks—what member of Congress, and who has been furnished with the facts that have been stated here to-night?

DR. PRATT: I have the name at home, but it is one unfamiliar to me; I cannot now recall it. How long will the gentleman be in Washington?

DR. WILKINS: Only a few days. I am going to Memphis first to spend a few days.

DR. PRATT: It is easy to find out. I think it is a special committee on public health. The clerk of the committee is a citizen of my town, and if you mention my name to him he will give you all the information you desire upon the subject.

DR. WILKINS: I will get Dr. Pratt to give his name, and will refer to him when I go there.

In my report two years ago—or I think it was perhaps four years ago—I suggested the propriety of our State making an appropriation and placing it in the hands of the Board of Health, or the trustees of its public institutions, for the purpose of paying the expenses of these people who are shipped back to their own country. Legislatures, as you all know, are very difficult bodies to manage sometimes; and our Legislature took no action upon my suggestion. A short time before I left California I laid the matter before our Board of Trustees at the Napa Asylum, and they passed a resolution authorizing the Board, in conjunction with myself, to confer with the Governor and see if any plan could be devised by which we could ship these people back to their own country, and especially the Chinese, because they are the disturbing element in California at this time, more than any others. The people are exceedingly anxious to get rid of them, and any method that can be devised by which we can get rid of any portion of them will be hailed as a great desideratum. The Governor was impressed with the idea, had a conference with the Chinese consul, and had some hope of getting rid of the insane at least, and perhaps some of the criminals in our asylums and prisons.

We have, in our State, about sixty-six per cent. of native-born citizens; the rest are foreign-born. The foreign-born furnish two-thirds of our insane population; so that they are four times as susceptible to the attacks of insanity as the native-born. I knew this could be accounted for in a great measure by the defective class who come into our country; but not having the data from which to make positive deductions, I was looking for other causes, and it occurred to me that it might be found, in a measure at least, in the change of the habits, and more especially of the diet of these people. The pauper element of Europe, as you all know, has been reared and lives upon vegetable diets and fruits. Coming to our country and adopting our habits and partaking immoderately of animal food, I concluded that it added fibrin to the blood and made it richer in quality and more stimulating in character, and the brain and nervous system being unaccustomed to richer food than it had been reared upon, inflammations, abrasions and bodily congestions were produced, and of course, according to my theory, the body having nothing added to it upon which it might normally hold its own, finally the mind became deranged as a consequence. I knew it was not speculating in mining stock, because Americans speculate in mining stocks. I knew it was not the climate, because we all breathe the same air. I knew it was not whiskey, because Americans partake of whiskey, and even in California are famous for drinking whiskey as well as the foreign-born. But we find two-thirds of the American-born producing one-third of the insane and the one-third of the foreign-born producing two-thirds of the insane. I read a paper in California, in which I showed the increase of insanity, in the ratio from

1860 to 1880, would make one-third of the entire population of California insane in one hundred and twenty years, at just the same *pro rata* increase, taking the increase of population and the increase of the insane. For instance, in 1860 there was only one insane person to every seven hundred and sixty-five of the population; in 1870, one to every four hundred and eighty-four; and in 1880, one to every three hundred and sixty odd. Following up this, it would make the result I have stated; one-third of the population would be insane in one hundred and twenty years.

I did this for two reasons: First, to call the attention of the examining boards to the fact that they were committing insane to our asylums faster than they could be built; Secondly, to call the attention of the legislators and those who have the framing of our laws generally, not only national but State, that there was a foreign population coming upon us that would overwhelm us if not put a stop to. You can therefore see that I hail with much pleasure the facts produced by Dr. Pratt, and I hope this will be extended into some organized effort. I would like to see him, for instance draft a bill, place it in the hands of some active member of Congress, and get him to follow it and pay some attention to it, that it may not sleep the sleep of death in the committee; that they may not merely say, "We will draw a bill and present it," but draw the bill and have it properly guarded, and have all of us either write to or see our representatives, and see if we cannot have some legislation that will relieve us from this great evil. I do not see how it is possible, to maintain the present strain upon our population of less than a million, having so many insane in our two asylums and building the third; for we now have in California, two thousand eight hundred and fifty insane, one thousand four hundred and four at Napa City, and the balance at Stockton. I do not see where the end is to be, or how long we can stand this building asylums for others, and I therefore hail with satisfaction this step. I would like to see a resolution passed endorsing the views which have been put forward, and asking Congress to take action upon this important matter.

DR. HURD: While Dr. Wilkins is on the floor, I wish he would tell us something of the forms of insanity from which the Chinese suffer, and the causes of it. When I was in his institution I saw a large number of Chinese there. A number of years ago I learned from a returned missionary that there was no insanity in China; therefore I was surprised to see so many Chinamen in the Napa Asylum.

DR. WILKINS: I will state for the information of the Association, that there are thirty-five Chinamen in our institution and about sixty-five in the institution at Stockton, making about one hundred in the State. The proportion of Chinese who become insane is not so great as that of other nationalities. We have accounted for that in two ways; first, as you have already intimated, that there is no insanity in China. I have been told by some of the Chinamen who speak English, that as soon as a man becomes insane, he is confined and let alone till he dies; thus there is no hereditary insanity in China. In the second place they have an organization that is wonderful in itself—a government within our government—and while they have to obey our laws, they still obey the laws of their fathers and live as they do at home; they eat rice and unstimulating food

and are, ordinarily, a very frugal, domestic and industrious race of people. They live, therefore, as they do at home, and are not so liable to be influenced by the customs, speculations and other causes which produce insanity in our State. I notice no difference in the forms of insanity. Dementia, melancholy and mania are the predominating cases. During the period of the revivalists, Moody and Sankey, we had three Chinamen sent to our Napa Asylum, one of whom is still there. The others recovered after the excitement passed off, and were discharged. They all spoke English, and from them I learned the facts I have stated; that there are no asylums in China, because when a Chinaman becomes insane he is put where he can do no harm, and is permitted to die. I do not think there is any marked difference in the types of insanity by which they are afflicted.

Dr. Chenault, from the Committee on Arrangements, submitted the following additional report, which was, on motion, adopted:

On Wednesday, May 19, at 2 P. M., take omnibuses at the hotel, for Ashland and Tracy's Stud farm.

On Thursday, May 20, at 9 A. M., proceed to the Eastern Lunatic Asylum of Kentucky, and after visiting the wards, hold a session of the Association in the chapel of the institution, and then partake of the entertainment provided by the Superintendent and Commissioners.

At the request of Judge Morton the President invited the members to visit, during the continuance of the meeting, the rooms of the Lexington Club.

On motion of Dr. Chenault, the Association adjourned, to meet at 9 A. M., May 19th.

The meeting was called to order on Wednesday, at 9 A. M., by the President.

Dr. W. R. Rodes, of the Lunatic Asylum, No. 1, Fulton, Missouri, was introduced.

Dr. Bryce, from the Committee to Audit the Accounts of the Treasurer, made the following report, which was adopted:

The Committee appointed by the chair to audit the account of the Treasurer, respectfully report that they have carefully examined the same and find it in every respect correct, and the principal items sustained by original vouchers.

To correct a balance of eighty dollars and forty-two cents due the Treasurer, and to meet the expenses of the Association for the current year, the Committee recommends that an assessment of three dollars be levied upon each Superintendent and collected by the Treasurer.

P. BRYCE, M. D.

A. N. DENTON, M. D.

M. CAMPBELL, M. D.

Committee.

DR. EVERTS: The next order of business will be the reading of a paper by Dr. Granger of Buffalo, entitled. "The Establishment of Training Schools in Asylums and the Systematic Instruction of Attendants."

Dr. Granger read his paper, as follows:

THE ESTABLISHMENT OF TRAINING SCHOOLS IN ASYLUMS AND THE SYSTEMATIC INSTRUCTION OF ATTENDANTS.

The employment of trained nurses for the care of the sick in all hospitals of our larger cities is now well-nigh universal; and connected with these hospitals, there is, in almost every case, a school for the training of nurses.

To be a well-trained nurse is an honorable calling, and affords to all who are qualified steady and well-paid employment.

The first regular training school, and from which all others have been copied, was established in June, 1865, at St. Thomas's Hospital, London, through the generosity and efforts of Miss Florence Nightingale. Not until 1873 was the system introduced into this country, when schools in New York, New Haven and Boston were opened.

Prior to the beginning at St. Thomas's good nursing was given by the Sisters of Charity, of the Roman Church; by the Institute of Deaconesses, formed by Pastor Fleicher, in Germany; by Orders of Sisters in the Established Church of England; by the Lutheran charitable societies in this country; by the Society of Friends in Philadelphia, and by individual efforts of worthy and accomplished women, of whom Miss Nightingale and Miss Elizabeth Fry are perhaps the best known. This does not include all the early efforts made to train nurses. Many of these honorable and valuable agencies are still doing a noble work, and ably supplement the more widely diffused and systematic work done in the established schools.

An effort is made to reach all classes who are sick, and furnish the rich and the poor with good nurses. The rich have well-trained nurses who are ready for hire, and societies are formed to extend to the poor the services of competent nurses, or to send to the very front in time of war, skilled and brave women who have no interest in the conflict, who serve the contending parties alike, whose only object is to care for the sick, the wounded and dying; or, in time of pestilence, to go with unflinching purpose, fearing nothing, to the border and shadow of death.

To keep abreast with the demand of the times, it seems necessary

that the insane should have the benefit of trained and skilled attendants and nurses. No reason can be advanced why this helpless class of sick people should be cared for by any except those who are as fully qualified as are the best nurses that are found in the best hospitals, or who are graduated from their schools.

Corresponding to the demands of their position their accomplishments and training should be as high as are those of the attending medical staff. Only where this is the case can we have that high order of care and the proper carrying out of the physicians' directions, as is now given in hospitals with trained nurses. It is no longer conjecture and theory, that it is desirable or feasible to train attendants, because it is something that has been done. The class of seven attendants who graduated on April 20, of this year, at the Buffalo Insane Asylum, demonstrated the accomplishment of both desire and feasibility.

At the schools connected with these institutions they were instructed in a course of elementary anatomy, physiology and hygiene, and in the general practice and principles of nursing, including the care of the sick—attendance upon surgical operations and surgical dressing, in monthly nursing, as thorough as that taught in the schools connected with general hospitals. In addition, most thorough and careful instruction was given in the care of the insane. Some of the instruction in nursing, surgery and obstetrics was necessarily in a measure didactic, but a most earnest effort was made to make it practical. The class got some practical experience in all of these branches, more especially in the nursing of the sick. This, with a thorough instruction in the theory of nursing, should fit them to easily acquire the practice of nursing, should they desire to follow it as a calling after leaving the asylum. It is extremely gratifying to state that none of the graduating class intend to leave, but have agreed to continue at least one year longer in the service of the asylum. This accomplishes the great end for which the school was established, namely to secure a skilled and permanent corps of attendants, who would remain in the service of the asylum, and fill all the more important positions, and control the changeable and unstable class, that drift in and out of our institutions.

To describe the practical working of our school is the object of this paper—thinking by so doing, I may be able to help others, by telling of our difficulties and methods of overcoming them—of our mistakes and our success, and so assist them—should they desire to begin the work.

But first let me speak of those who have been among the pioneers in their work. Undoubtedly many superintendents have given instructions to their attendants. Some upon the wards and about the care of particular cases. Others have called their attendants together, and given them some lectures. But such instructions have been irregular and fragmentary, and by no means filled the requirements of systematic instruction in an established school. About ten years ago Dr. Clouston read a paper before the British Medico-Psychological Association, upon the subject of getting a better class of attendants, and their instruction. Later, Dr. Campbell Clark, of Glasgow Asylum, began a course of instruction, and had, in 1884, given first and second-class certificates to several men and women

attendants. Dr. Clark is entitled to great credit for his initiatory work, and without attempting to belittle it, I should say, that while he presented an excellent course, so far as it went, he did not by the organization of a school, and an extended course of instruction, get those highest results which alone compare with those accomplished in the training schools of general hospitals.

In this country a school has been established for some time, in connection with the McLean Asylum, under Dr. Cowles. Since the establishment of that school and the one at Buffalo, several have been organized, and more are contemplated. A literature is also forming, and several books, on the instruction of attendants have been issued. The work seems to be fairly begun—it must increase, until every well-ordered asylum shall in some way give good instructions to its attendants; and it must continue until the direct care of all the insane shall be given by attendants, who are trained for their special work. It represents the progress and enlightenment of our age. It is something that has been begun from a feeling on the part of the physicians in charge of our asylums that higher care was needed, and is not anything that has been forced upon us, by outside influences. If it is an innovation or a reform, it springs entirely from within. At the Buffalo Asylum it was begun because we wanted it, and not because anyone wanted us to do it.

There are some marked differences in the organization and inducements offered by training schools in hospitals and asylums, which in many ways are so much to the advantage of the hospitals, that it seems necessary to mention them, in order to explain some of the difficulties encountered in an endeavor to bring a school in an asylum up to the high standard of success achieved by the schools in hospitals. The object of a school in a hospital, is to procure for the patients the best nursing. The object of those who enter the school is, to get the training and a certificate as a trained nurse, in order to be able to do private nursing and get the large pay for their services so easily earned in all the larger cities. The hospitals can train nurses, but they cannot afford to employ them after they have graduated. The position and pay of a nurse is sufficient to attract more applicants at all the schools than can be admitted, and the schools are able to choose the best that apply. While engaged in the study they are paid but little, the instruction being deemed sufficient remuneration. They are generally given pleasant quarters outside the hospital, where they are lodged and boarded, and everything made comfortable and homelike. They have no ward work to do, no menial labors, no confined life upon the wards; their duties are confined to nursing and study, and their ambition is to graduate at the end of two years, and leave an institution they have a strong pride and love for, to begin an honorable and lucrative calling.

A school in an asylum must be begun with the attendants. No inducements can be offered in the beginning, unless the entire arrangement of the work and organization upon the wards is radically changed, which will induce those who are now secured for the schools in hospitals to join an asylum school. The very object of our schools is to secure attendants who are trained and who will remain in the asylum, instead of looking forward to the independence of being their own mistresses and the large pay of a

graduated nurse they see at the end of two years' continued service in the asylum, rather than the much smaller pay that position brings. Besides, though a training school be established, they are attendants still, and obliged to do the hard, unattractive work of the wards—spend their days and nights upon them. The instruction in general nursing, it has been said, is largely didactic, and they feel however well they may learn the lectures and read their text-books, they cannot successfully compete in private nursing with their sister graduates from the hospitals. It is to be observed that a school elevates the attendants, stimulates their ambition, enlarges their characters and cultivates their minds. A school, well conducted, is a liberal education to many of the attendants, and their intellectual growth can be easily noted as the work and study go on.

Many of the attendants had but a scanty education, and their minds had been long unaccustomed to study, but whenever there is manifested a desire to learn, it is a pleasure to watch the development of their minds, their increasing ability to acquire what is taught, and their pleasurable consciousness of success. In the class that graduated, two of the attendants were possessed of a good education, three a fair one, and two were quite wanting, yet at the final examination, it would have been hard to say who did the best; there was a surprising equality in their learning. This result was brought about by the hard study of all, and the fact that the poorer educated had good minds, that only needed the opportunity to show what they were made of. I would not deny that, all things being equal, the best educated are the best qualified for trained attendants. But from my experience, after teaching for three years, and having had nearly a hundred attendants in my class, taken as they are found in an asylum, I can confidently say, that any person who is fit to be an attendant and who can read and write, can learn everything that is taught, and learn it thoroughly. All will not learn it—all have not the ambition or desire to learn it.

It requires very careful teaching on the part of the physician to get this result. He must be patient, simple in his manner, make use of plain, forcible language, and explain with care every doubtful point, or unusual work. He must be apt to illustrate, encourage those who find difficulties, teach how to study, and above all, he must adapt himself to each person, and literally carry them to a successful accomplishment of their work. It will not do to give a lecture, and then leave it. But it must be given, then reviewed, and recited upon, and put away for final reviews. They have, to be made familiar with the theme, by constant repetition; for instance, the lecture on muscles (the notes furnished the class, I present you,) required two lectures, which was followed by a recitation. The lecture on circulation required three lectures and two recitations. But when finished, I knew that every attendant understood the subject.

I think the success of a school depends more upon the instructor than the scholars. Unless he is earnest, determined to succeed and to overcome every obstacle, has the ability to teach and to inspire others with an interest in the work, it will be but half done, or will entirely fail.

The attendants must be made to feel there is some object to be gained for their efforts. It is not enough to tell them they are doing it for their own good: they are sharp enough to see the asylum reaps advantage in this.

After reading the foregoing paper Dr. Granger presented for examination by the members, a large number of text-books, on Elementary Anatomy, Physiology and Hygiene, Upon General Nursing, the Treatment of Emergencies and the Care of the Insane.

DR. EVERTS: The members of the Association have no doubt been interested in this subject, new to the Association, and particularly interesting to me. Any gentleman who has remarks to make we would be glad to hear, for the benefit of the Association.

DR. TUTTLE: Mr. President—This is a subject in which I have a great deal of interest, and I think the time is soon coming when training schools for nurses in asylums will be as common as they now are in general hospitals. It is not a question of whether we shall train our nurses, as how much we shall train them and what method shall be pursued. Of course every asylum now instructs them to a certain extent. The only question is how much is to be done. When nurses enter the service of an asylum they get their instruction from the supervisors and from the physicians in the wards. That is a matter of individual instruction. It takes much time, and is consequently limited in extent. It has to be repeated in every case separately, and is both inefficient and wasteful of time for want of method. It is a great deal better to assemble the nurses by divisions, according as they can be spared from the wards, and give them systematic instruction. Perhaps some of you have not received Dr. Cowles' last report, in which he speaks on this topic; and it may not be out of place to mention what has been done at the McLean Asylum, and how it has been accomplished. Of course we had to begin with the nurses already in the service, and we have done there certain things that the reader has spoken of. For instance, the nurses have been relieved of a great deal of drudgery by employing, on the women's side, and on the men's side where there are women nurses, ward maids, who scrub the floors, assist in making beds on the men's side of the house, wash dishes and windows, and do other things of that sort which our nurses formerly did. This work being done by these women, it gives nurses more time for the better work which we require of them, viz., companionship with the patients, etc.

During the preliminary stage of organization all new nurses, and many of the older ones, were pledged to join in a scheme of training, so that, by the time the lecture system was added, there was a general feeling of expectation and desire, and one-third of the nurses responded to the invitation to formally join the school, with the understanding that they were to remain two years. This was quite enough for the purpose, because it drew less from the wards for lecture and class exercises. Those who did not care to join were allowed to go on as they had done. Many of the nurses had been in the service of the asylum for years, and were not made to feel that their position would be unpleasant; but in course of time they dropped out, for legitimate causes, and when they went others came in that joined the school. We take no nurses now except those who

become members of the training school, and in course of time all our nurses will be graduates or pupils.

The school was organized with a superintendent of nurses at its head, whose duty it is to direct all that relates to the teaching of the nurses, both in class exercises and practical work in the wards. She conducts the recitations of a division of each class, examines and corrects the notes taken of the lectures given by the medical officers; and has, under the superintendent, the entire charge of the employment, management and discipline of the nurses. In addition to this, she has the usual duty of a matron, which in a large hospital would necessitate the employment of an assistant called a housekeeper, as in the general hospitals, such duty in the wards being done by the supervisors.

Our superintendent had been in the service of the asylum, as nurse and supervisor, for many years, and she was sent to the training school of the Boston City Hospital for special instruction.

She is assisted in the work of training and managing the nurses by the supervisor, who is a graduate of the Boston school.

The first assistant-physician lectures each week to the junior class on general nursing in all diseases other than insanity, with special application to the insane, as may be indicated. This includes subjects admitting of practical demonstration, emergencies, elementary anatomy and physiology, except of the nervous system. This last is taken up by the superintendent, who also gives weekly lectures to the senior class upon the management of cases of disease of the nervous system, with a course on elementary psychology and insanity.

This matter of organization is very important as regards the permanence of the school. A proper corps of instructors is absolutely necessary. It must not depend on one man, whether superintendent or assistant-physician, for the ordinary demands upon the time of the medical officers of a hospital often interfere with the work of the school. The more the work is divided the less the chance of interruption of its regular progress by illness or change of officers.

The school year is eight months, from October 1st to June 1st. The course of instruction, beside the lectures spoken of, include recitations from the following text-books: For the first year, "A Manual for Hospital Nurses," by Edward J. Donville; Hutchinson's "Physiology, as far as the Nervous System;" "A Manual of Nursing," by Charles J. Cullingworth; and part of "A Text-Book of Nursing," by Clara S. Weeks. For the second year, "Text-Book of Nursing," by Miss Weeks, completed; Hutchinson's "Physiology," completed; "Handbook for the Instruction of Attendants on the Insane," reprinted by Messrs. Cupples, Upham & Co.; "Notes on Fever Nursing," by James W. Allen; "A Short Manual for Monthly Nurses," by Cullingworth; and portions of "Handbook for Hospitals," prepared by the State Charities Aid Association of New York. This list of text-books will be improved upon as experience teaches.

Each class recites once a week, one division to the superintendent of nurses, the other to her assistant.

Small classes are formed in rotation, from both junior and senior

years, until all receive instruction in massage. During the senior year there is a short course in Cookery, given by a teacher from the Boston Cooking School. A room is fitted up with gas stoves, arranged upon tables placed on three sides of a hollow square—the nurses on the outside—the instructors within. After a preliminary lecture materials are given the nurses, and they are requested to put in practice the instruction received. This was introduced the past year: it is eminently practical and gives great satisfaction. The knowledge of the nurses can be utilized by requiring them to prepare delicacies for the sick, which would seriously interfere with the routine work of a large kitchen. At the end of each four months there is a written examination. A certain number of questions are put upon a blackboard, and each nurse has three hours in which to answer them. If I had known this matter was coming up for discussion I should have been pleased to show you some of the examination papers.

When the question of establishing a school for nurses for the insane was first considered, I doubted whether a hospital for the insane, especially a small hospital like ours, could give instruction of such a character as would enable them to compete with the graduates of general hospital schools; but as the work developed it was found that there was not only considerable material for the exercise of the duties of a nurse, but that much more than was supposed could be accomplished by teaching the principles of the work. It is a fact that the most a well trained nurse should know can be taught as well in an asylum for the insane as in a general hospital; for example, the proper care of patients confined to the bed, the changing of clothing, giving baths, taking and recording of pulse, temperature and respiration, passing the catheter, etc., etc.

As far as the cases of acute disease are concerned, if the nurse knows how these things are best done, she will have little trouble in adapting herself to the requirements of special cases.

I suppose an ideal nurse would be one who has, after a course of instruction in an asylum, taken a year in a general hospital. We have had quite a number of young women who, after a partial course in a general hospital, have entered our training school, but who soon left. There is not that rapidity of change in the patients to which they are accustomed. I put the asylum instruction first, for the nurse who has had her training in an insane asylum expects her cases to be troublesome, has the tact for their proper management, and will succeed best in the care of the sick.

The question yet remains to be decided whether we can keep our nurses after they have graduated. Those already graduated have made an agreement to stay till fall. Dr. Cowles is now considering whether he will not increase the pay of such graduates as we wish to retain. We are now frequently requested to furnish nurses for the care of private cases, and the demand will be greater as soon as it is understood that we graduate them for that purpose. A good nurse gets fifteen dollars a week in the vicinity of Boston, and ten dollars in the smaller cities of New England, which is certainly a great inducement for her to engage in that sort of work.

Speaking of compensation—the pay of our pupil nurses has been reduced and the wages of those who in future may join the school will

correspond very nearly with what is given in the training schools of the neighboring hospitals, their instruction being considered in part an equivalent for their services. The supply of applicants has already been sufficient, and has increased since the establishment of the training school has been known.

At the McLean Asylum the results of the new system have been very satisfactory; the nurses have a kind of interest in their work we have never seen before. They take pride in adapting themselves to the different mental states of the patients; they more intelligently observe and report the mental and other symptoms, and they more thoroughly do what is required of them, because they do it more understandingly. I think there would be little difficulty in establishing a training school in any hospital for the insane, wherever it may be or whatever the character of the nurses. If the standard of intelligence may not be high, something can be done to improve their present condition.

DR. PRATT: I would like to ask if instruction is given to men attendants, as well as to the women attendants?

DR. GRANGER: Instruction has been given to all men attendants since July, 1885. They seem to be as interested in their studies as do the women. So far, lectures have been given to both sexes at the same hour. Some of the lectures must be given to each separately.

DR. PRATT: How large a proportion of men as compared to the women, do you find fitted to take the course and become nurses?

DR. GRANGER: All the men attendants but one, are in the school. Now, all that are employed join the school. But few of the men will become nurses, to follow it as a calling after they leave. They are, however much interested in their studies, and while they remain with us, they have the inducement to study, because it is made interesting, and because by finishing the course their pay and privileges are increased.

DR. PRATT: This preliminary course of study; what is the special object of that?

DR. GRANGER: We require two months' trial before a new attendant is fully accepted as an attendant and a member of the school. If the work is distasteful, they can, at the end of a month, leave. If we do not think them fitted for their positions, we can, at the end of two months, decline to give them permanent employment.

DR. PRATT: I am very much interested in this discussion. It is a subject on which I have thought a good deal. I have been hoping that some one would lead off and show the rest of us how to do it. All of us who were surgeons during the war, or since, know how difficult it is to find a good nurse among men. We all understand, of course, the aptitude of women to make good nurses, and that the faculty is much more common in them than in men; and we understand, at least all physicians in private practice, that a good, competent, skillful, faithful man nurse is very hard to find, and when found, commands the highest wages. There will be, I fear, some practical difficulties arising in asylums in keeping up a full line of trained nurses. As soon as it is known in the adjoining community that you have trained nurses, their services will command such compensation outside, and especially in city institutions, that we shall

not be able to induce legislators for some time to come to authorize the payment of such wages as will keep them, so as to be benefited by their being taught. But it is a movement in the right direction, and perhaps we can in time induce our managing boards of institutions, and legislators, to appreciate the value of such trained and skillful service, and authorize such compensation as will retain in asylum service the more valuable nurses and graduates from the training schools.

The practical difficulties I can see in collecting a class, especially in starting and getting things into shape so as to incite interest, must be quite onerous and quite numerous; but in this and every other good thing, the enthusiasm for the task and the belief in its practical utility, will overcome all difficulties in the way. I hope hereafter, in the meetings of the Association for some time to come, this subject will be one of the standard topics. As this work expands, as it will, and progresses, we shall be able to learn from each other many practical facts and methods.

DR. SCHULTZ: Mr. President—It seems to me we ought to have more remarks on this subject than we have had.

DR. EVERTS: I think so myself.

DR. SCHULTZ: The attendants in an insane hospital are the chief channels through which whatever benefits the patients receive are conveyed. If this medium of communication is for any reason unsuited to its works, or fails to accomplish it, then to this extent the benevolent purposes of the State or the private individual, establishing a hospital, come short of being realized. What superintendent has not been obliged to confess with sorrow to himself, if not to others, that his best plans have at times miscarried for the reason mentioned. There are, of course, difficulties connected with this subject we may never be able to overcome. But, to my mind, nothing promises so much substantial progress as the systematic and thorough training of nurses, as it has been discussed here. My first motive in rising was to express my satisfaction with this paper and my sense of its value, as pointing out a practical measure, full of promise for the good of the insane in the hospitals.

DR. HURD: Mr. President—It was my good fortune to be present at Buffalo at the commencement exercises of the training school, and I may be pardoned if I make allusion to one thing which impressed me at that time. Setting aside all the educational advantages that the attendants had received, it seemed to me that the manifest sympathy which existed between the medical officers and the attendants was of great value. I think all of us who have had charge of attendants for many years have at times been painfully impressed with the fact that we did not get hold of the attendants; we did not secure that hearty, whole-souled co-operation from them which is so desirable in properly caring for insane people. There has seemed to be a wide gulf between the physician and the attendant. At Buffalo, it was evident to me that those attendants who had gone through the two years' course had acquired a sympathy with the methods of the asylum. They were not critical; they were not wondering whether this or that direction should have been given; whether this or that was best; but seemed to be thoroughly in sympathy with all the methods of asylum work, and each one was striving most zealously and heartily to carry out

the plans of the physician. And I may say also that the reflex effect upon the physician was most happy. I believe that Dr. Granger, in assuming the burden of this school, in instituting and carrying it on almost unaided, has himself, during the time it has been in operation, become wonderfully developed. I believe he has appreciated the difficulties of the attendants as he had never done before. I think he has appreciated their good works also, and has himself been stimulated to do more for his patients than he would have done if it had not been for this school.

There is another point of great importance which I desire to emphasize in connection with all training schools for attendants, and that is the necessity for every hospital for the insane to establish infirmary wards for the care of the sick and the feeble, for the nursing of the depressed, for the watching of the suicidal and for the tender, personal care of the recent cases. I am positive that as institutions have been organized heretofore, and as too many are organized in this country to-day, there is a great failure in this respect. A delicate patient is received into an institution and is put immediately into a ward—perhaps her condition requires it—where she is associated with a disturbed class of patients. The time and attention of the attendant are taken up to a great extent by patients who give trouble, and the feeble, delicate, shrinking patient, is forgotten because she does not give much trouble. Possibly she is confined to her bed, when her condition does not exact the same amount of attention as that of some boisterous cases, and she is overlooked. By the arrangement of a hospital ward, patients of this description receive proper attention, and cases which require most careful personal attention, and who will reap permanent benefit from it, can receive it at the right time. The superintendent lies down at night knowing that no feeble patient during the night will lack a drink of water; that no feeble person will require the services of an attendant and not get them, and that no suicidal patient will be permitted to destroy herself during the night. In my own experience I have found that my best attendants—I have had no systematic training of attendants—have been those who have received their training in such hospital wards. I would urge that, in connection with training schools, there be established in each asylum, hospital, or infirmary wards.

DR. RICHARDSON: It has always seemed to me that there has been a great difficulty in securing proper hospital attendants, considering what that word "attendant" ought to mean. We take them, usually, without any preliminary experience whatever, in the care of any form of sickness, certainly without any experience in the care of the insane. The attempt has been made with us to encourage experience and reward it by greater wages; and I have tried to give some instruction in the explanation of rules, etc., and instruction in detail in the wards. There is one point particularly, that, it seems to me, would be greatly enhanced by these regular training schools, and it is a defect I have particularly noticed, viz., the difficulty of securing attendants who would be as well companions of the insane. We can usually get those who will do the mechanical work in the ward in a proper way; keeping the ward clean, keeping the beds properly made, and keeping the floors clean and neat, and the patients, as a general thing, properly dressed. But after that is done they seem to feel

that is the end of their labors, and feel inclined to go to themselves, and the patients are left to associate with themselves. I think that largely arises from the fact that they have so much of this drudgery to perform, and that one great improvement which would be the result of this method of giving higher training to the attendants as a class, would be to inspire them with the idea that they are a little more than mere servants, and that, as a consequence, they owe something more to the institution and to the insane; and by relieving them of this drudgery, by employing another class for that—and I see some practical difficulties in the way of that, but as far as that can be done, they might be made to feel that their *highest* duty was the *care* of the patients themselves. We might be able to modify the wages in such a way that, while the sum total might not be increased much, we would be able to compensate them in some degree for the higher grade of competency required in them. We pay a higher grade of wages now for female attendants, very much higher, than ordinary domestics. The drudgery of the ward could be done by these domestics at lower wages; then we would have a surplus that we could give to these; and by that means draw to the institution a class of educated people we do not get now. We just pay enough to get a class not sufficiently educated to make good companions, but more than is necessary to get domestics. Now, as far as that division of labor can be carried out, it seems to me it would be of very great importance. How far it can be done with our present system of construction, I am unable to say. That is the reason I would be favorable to separating the day and night departments. If we could have them separate, this labor could be done by domestics, entirely separate from the patients, while the direct care of the patients themselves—the individual work connected therewith—could be done by these trained nurses. We want our attendants to be companions of the insane, and not mere domestics and drudges. We do not get the great benefit in the moral treatment that we ought to get until we get that.

The benefit that Dr. Hurd mentions, in bringing the attendants into closer connection with the medical officers, it seems to me is very great. They do their work intelligently. If they have any instruction given to them, they know why it is given, and know the necessity for it; and they are treated more as intelligent beings. We explain to them the necessity for this nursing, and the consequence is that they do their work with more energy, and have more love for it, and have more enthusiasm in the special care of the insane. They do not come then into the ward as with a certain amount of physical labor to go through with and then sit down; but they feel there is something beyond that. It is the great difficulty I have with my attendants, to teach them that there is something beyond that that they are employed for, and that is to lead out and educate these disturbed minds, and assist in that manner in the recovery of the patients. I have always felt that more depended upon them than any particular remedy. It is one of the great elements in the moral treatment of the insane, which is a most important part of the whole system. I am heartily in accord with this idea, and I believe the time is coming when every institution ought to have one of these schools in connection with it.

DR. STEARNS: Mr. President—I rise more especially to express my thanks to Dr. Granger for the valuable and, in some respects, instructive paper he has favored us with. If there is one element of greater importance at the present time than others in the treatment of the insane, and one which conduces more largely towards recoveries among them, it consists in having skillful attendants for their care. Their intercourse is more intimate, and they come into closer relations than is possible for the physician to do, and if educated to carefully observe, not only medical but physical symptoms and conditions, will be able not only to understand and assist the patient, but also to aid the physician in arriving at a correct estimate of the case. It is to be feared that the old idea of “keeper” still lingers to a large extent in the minds of attendants, and that they regard their whole duty as performed when they have exercised this function; and the idea of studying the mental and physical conditions, except in the most superficial manner, never occurs to them. With too many the occupation is taken up, in the first instance, because they have nothing else to do, and the intention is to follow it only until something more desirable or more lucrative turns up; and if any way can be found to introduce the element of greater permanence into the employment it will be a large gain. Now it seems to me that this plan of systematic training and education may be just the thing, by means of which this may be accomplished. In order that persons should become interested in any occupation and adhere to it, it is necessary for them to understand how to perform the duties connected with it so far as they may be able to qualify themselves. There are doubtless greater difficulties in the way of establishing such courses of instruction in some of the large State institutions than would be found in smaller and corporate ones, but if it can be understood by all that it is desirable and will be of value in securing the best results of treatment, I think it can be brought about. Indeed it seems to have already been accomplished at Buffalo. That is a State institution, and the physicians seem to have succeeded in securing the co-operation of the trustees in establishing such a school. That is probably the best course to pursue, and if trustees and directors once come to understand the importance of this they will be as ready to co-operate and give countenance to establish these schools as they have been to make the primary outlay for humane care and treatment of the insane.

DR. BRYCE: I am hardly prepared, Mr. President, to express any decided opinion on this important subject. The proposition is a comparatively new one to us all, and we have hardly had time to view it in all of its important bearings and relations to the proper management of our hospitals for the insane. We are all prepared however, to acknowledge our obligations to Dr. Granger for such a well-conceived scheme and his admirable presentation of it, in the paper just read. I do not hesitate to say, however, that I already see a great many difficulties in the way of establishing these schools in our State hospitals for the insane. It is possible that these difficulties may be overcome, as they have been, in a measure, at the asylum at Buffalo. No one, I presume, who has any experience in the care of the insane, will take issue with Dr. Granger in the general proposition, that well-informed, well-bred men and women, other

things being equal, make better nurses for the insane than those who have never enjoyed such advantages. If there is one fact, more than any other, that daily impresses itself upon my mind, it is the importance of securing intelligent help in the management of the insane. Particularly is this important, nay essential, in an institution numbering nearly eight hundred patients, where every vestige of manual restraint has been abolished, as it has been in the Alabama Insane Hospital. The impoverishment of our Southern country by the late war has forced many of our best people, both men and women, to seek service in the less remunerative and less honorable walks of life. For years past I have been giving employment to this class of persons, and every day teaches me the great value of such intelligent assistance in the care of my patients. It is true that this class of persons, especially the women, are not as accomplished as the Biddies are in scrubbing floors and the more menial work of the wards, neither do I require it of them. There are usually enough servants about a large hospital to do this kind of work. What we most desire in our nurses is a just appreciation of the delicate duties they are called upon to perform; and to possess this their minds must be enlightened, their sympathies lively, their manners cultivated and refined. If to these were superadded such technical knowledge of insanity and the details of skillful nursing, as Dr. Granger proposes to teach them, then I imagine their fitness would be complete. Except in the most menial pursuits of life—the hewing of wood and drawing of water—nobody will contend that ignorance has any advantage over intelligence. The absurdity of such an idea is patent at the first glance. But the care of the insane is far from the simple thing we used to regard it before we understood the true nature of the mind. I do not know of any vocation in life that requires for its successful pursuit a higher order of natural mental endowments, than that of companion or nurse for the insane. We admit the propriety, nay the necessity, of educating nurses for the ordinary sick; and, of late years, much attention is being paid to this branch of technical education. Our best physicians and largest metropolitan hospitals are encouraging this course, and many of the best women in the land are pursuing it. If it requires then, a trained nurse to minister to the ordinary sick, who can think for themselves, how much more necessary it becomes to secure the same advantages for the insane, who have lost their reasoning powers, and are to that extent unable to help or care for themselves.

The question, it seems to me, Mr. President, is self-evident and admits of no dispute. The only point of discussion, in my judgment is, what are the best methods of imparting the necessary instruction to our nurses. As I said in the beginning, I see many difficulties in the way of carrying out this lecture system, especially in my own hospital, so successfully inaugurated at Buffalo by my friend, Dr. Granger. But I will not take up the time of the Association stating these difficulties, which after all may be easily overcome. I am delighted with Dr. Granger's paper, and have been much benefited by it and the remarks it has called forth from others. Somehow I believe it will make an epoch in the treatment of the insane, and it will not be long before we have a training school in every large hospital in the land.

Dr. Blumer, of the State Lunatic Asylum at Utica, who had lately visited the Buffalo Asylum, endorsed Dr. Hurd's remarks concerning the status of attendants in that institution, and expressed his gratification at the new departure. There was no organized training school in the Utica Asylum, though lectures to attendants had been begun three years ago. Changes on the staff had involved a discontinuance of the lectures. He was impressed by a remark made by Dr. Tuttle, that training schools should be organized with a view to permanency. He alluded to the conservatism of many men in the matter. He stated that he was present at a meeting of the British Medico-Psychological Association when the subject of training schools was introduced by Dr. Clark, of the Glasgow District Asylum, at Bothwell, and could not but notice the cautious objection made by some of the older members to the publication of the manual to which Dr. Granger had referred.

DR. WILKINS: Mr. President—I have felt myself to be among the pupils here, not the teachers. I have come a long way for the purpose of gaining new ideas; being on the border-land, perhaps of insanity as well as the continent. I was a little afraid, from the difficulty I have of no association with gentlemen having charge of asylums, that I might get to running into a groove, thinking that I knew a great deal more than I do; and as I did not want the institution over which I preside to get behind, I have come over to collect all the interesting matter that I can derive from the gentlemen who have asylums under their charge.

We have no training schools in our State. Our instruction has been in the old way, of giving the attendants our rules and regulations and occasionally examining them upon these rules, to see whether they understand them. I have no doubt that this new idea will take root and grow, and that it will be of great benefit to the institutions for the insane throughout the country. As Dr. Bryce has said, I see a great many difficulties in the way that will have to be overcome by patient and continuous effort. I have found difficulty even in getting assistant-physicians enough. I have brought the fact before our Legislature, that the asylums of California have the smallest medical corps of any in the world; two asylums there, with fourteen hundred patients, have two assistant-physicians each. It makes it impossible for us even to keep case books. It is impossible for us to be as much among the patients as we know we ought to be; and until we can induce our Legislature to give us a little more liberal appropriation to employ an additional medical corps, and also additional supervisors and instructors, I fear it will be difficult for us to carry on training schools in

our institutions. I was trying to impress the importance of this subject upon our Board of Trustees, who have always been very kind in adopting suggestions I have made; but we have not the power the Legislature has, in making the necessary appropriations to carry out the idea suggested.

As suggested by one who has addressed the meeting to-day, I have been laboring for years to get a small appropriation to construct two small infirmaries, one for sick men and one for sick women, but without avail. I recommended, as far back as sixteen years ago, to have an infirmary for the sick. It was incorporated in the plans of the Napa Asylum; but unfortunately, the money which should have been spent in that direction was expended in the ornamentation of the outside of the building, and this very useful addenda to the asylum was omitted. I have not been able to get it since.

I think good results will follow the inauguration of this system. Dr. Granger has started it at Buffalo, and I understand his is a State institution, although near the city of Buffalo. He may have an opportunity of securing better attendants than we have, and a larger number of assistants.

You can imagine the difficulties under which we labor in California. It is true we pay our attendants more than they pay anywhere in the world; from forty-five down to thirty-five dollars a month, and we pay the women the same as the men. I think that is a mistake; yet we have inaugurated that system and have followed it up. It brings to us quite an intelligent class of attendants, although we have some who are not up to the mark; and you all know the difficulty of getting rid of attendants, once having employed them, unless they violate some rule that they have agreed to carry out. We are more particular now in the selection of our attendants than we have been. I think we are now getting a good class of attendants, and hope we will improve in the future. I shall do all I can to educate them; but very little time is left us for instruction, after attending to the duties of visiting the insane and devoting the time to other matters of the asylum.

DR. FINCH: I have been very much interested in the discussion here this evening. I have always felt the necessity of doing whatever can be done to increase efficiency in ward service. The feature that our attendants had so much manual labor, very much of which is menial, to perform, that they could not give to patients that companionship and that care in the way of leading away their minds from morbid delusions, is true I have no doubt. I believe also that but for this labor, which under our present system they must do, a better class of attendants might be secured. It is my experience that many of the best applicants, or those I have reasons to believe were well qualified, were deterred from engaging in the work when they came to learn the nature of the duties expected of them.

It has been suggested here to employ maids in the female department to take charge of the scrubbing and other kinds of menial service. This might be found to work well. Dr. Bryce says that he has found the employment in his asylum of this character of labor quite satisfactory—that it gives the attendants more time to spend with the patients, and that a better class of attendants is secured by reason of which.

The matter of training schools for the education of attendants has

been a subject of discussion here. This is a new departure. I believe, however, that it is a move in the right direction. The attendant is the strong right arm of the superintendent. We cannot too highly esteem them when they have efficiency, and when they are the worthy companions as well as the attendants of those in their charge. I hope great good will grow out of the movement, and I believe that the discussion here had, has inaugurated the movement throughout the country. So far as my influence goes I shall endeavor to assist it all I can. It is true that very many male and female attendants have naturally a fitness for the work of managing the insane—Dr. Kirkbride used to call it “tact”—something which I believe no training school can give, and which possibly can never be acquired. It seems to be a certain natural fitness to adapt themselves to the work. We find very frequently that persons of the least experience make the best attendants, so many lack the ability or tact to lead away the mind of the insane from its morbid state. Many of my best attendants have been but a few months in the service; this is because of their natural adaptability.

The training school will no doubt assist and make those that are naturally efficient, more efficient; and those not possessing this tact it will more readily assist them in acquiring it.

DR. CALLENDER: I do not know that I may, and I shall not assume that I can add anything to the discussions this morning; but I will briefly say, sir, that as a superintendent of some years' experience, and as a frequent attendant upon the deliberations of this body for a number of years, I regard the discussions of the last hour and a half as of more importance, perhaps, than any to which the attention of this Association has ever been directed. I will not attempt to recapitulate now what is the experience of every one of us, namely, that these employees we call attendants and nurses are our eyes and our ears and our hands, and very materially assist our judgment and our means of relieving this unfortunate class of people. I have, in my experience, frequently reflected on the matter of training attendants, and my attention has been directed, the past few years, to the system of trained nurses and attendants now brought to our notice; but a press of duties have hitherto deterred me from framing for myself a system. We all have an individuality concerning our institutions in different sections of the country. But, as Dr. Stearns remarks, I think we are all aware that with the amount of public money appropriated for the care and treatment, the number of recoveries of the insane falls short of what the public have a right to expect, and that the reason of all this, as he remarked in the discussion yesterday afternoon, is due in great part to that lack of qualification and elevation of character which we should have in what we call our eyes, our ears, and our hands. I repeat what I have already said that there has not been any meeting of this Association when there has been a discussion on a subject which I can say was of more importance. And for this, I wish to say, I thank Dr. Granger and Dr. Tuttle for their presentation, this morning, to the meeting, of that which has proved so attractive, as I know this has been to us.

DR. EVERTS: Has there not been some effort in the Indiana hospitals to establish training schools?

DR. MUNSON: They have Kindergarten schools.

DR. TUTTLE. The women in our hospitals are better fitted for the care of the insane than the men ; they are by nature better adapted. I do not know of any general hospital that trains its men nurses. The reason is, there are few of them as compared with the women ; most of the nurses, even in the male wards, are women, and the few men they employ are rather for the more menial service. If the general hospital has an advantage in training the women, we have an equal advantage in training the men, and I think it is of equal, if not greater importance that the men be instructed. We have not, as yet, in the training of men, gone beyond the practical instruction in wardwork, in accordance with the methods of the new system, but their interest has been so far stimulated, that it now requires very little to complete our whole scheme for training.

DR. HURD: A question about the uniforming of attendants,—you uniform them, do you not?

DR. TUTTLE: All nurses in the school are obliged to wear a gown of a certain pattern and style, made of American gingham ; a small check, blue and white, black and white or brown and white, according to the choice of the nurse, and a regulation cap and apron.

DR. GRISSOM: Mr. President—I regret that I have nothing especially useful to offer to this fund of experimental knowledge, that you are so appropriately gathering ; but I desire, in an emphatic manner, to express my great gratification at the inauguration of this line of thought and investigation in the Association. But for the fact—from some sort of mentality—that my friend, Dr. Callender, anticipated my thoughts, I should have expressed my views more at length upon this subject.

It is a line of thought upon which, for fifteen years or longer, I have been in some sort of way directing my attention. For a long time it has been our daily habit, at a certain hour in the evening, for our medical officers, steward and matron to assemble and hear written or verbal reports from every attendant who has had charge of the ward or patients during the day, within the house or outside. These reports embrace every transaction or occurrence of interest, and especially not of ordinary routine business, including many matters connected with the patients and their conduct and condition during the day.

This custom has afforded a sort of training school for all concerned. Besides this, I occasionally assemble the attendants for examination. From the views expressed here, and the approbation with which they are received, it seems probable that not far in the future, a regular organized system of instruction for attendants may become a necessity. I desire to emphasize what I believe every alienist realizes, that what is generally called *moral* treatment of the insane is paramount to every other consideration—c.early paramount to the exclusive *medical* treatment. And if that be so—and I believe nobody denies it—then the importance of teaching the attendant, who is the immediate connecting link between the medical officer and the patients, is apparent. And of course, the more thorough and extensive the teaching, the better.

Their proper training is of but little less importance than the training of the medical officers themselves.

One of the troubles some of us may have to encounter may be insufficient appropriation to be able to offer sufficient wages to command the better and fitter class of attendants, or retain them when qualified. I desire again to express my gratification at the introduction of several new features in our discussions. I believe the recent sessions have inaugurated a new era in the history of our Association. The further consideration of *this* and the question of immigration and its surroundings, presented by Dr. Pratt, is destined, I think, to result in great practical good in the political economy and material prosperity of the country. No questions of more importance, in my judgment, have been of late considered either here or elsewhere.

DR. HILL: I embrace this opportunity to thank Dr. Granger and Dr. Tuttle for their discussion on training schools for attendants. I congratulate them upon the success already secured. In the same connection, I would express my gratitude to others present for the very valuable hints I have received from their remarks. I have, in different ways, tried to accomplish some good for the patients committed to my care, especially those who are susceptible of cure, by classification, rather than by training all my nurses or attendants. Of course, in a large State institution, where there are twenty to twenty-five wards, a different plan can be pursued than in smaller institutions. I have classified my patients by putting the chronic cases on the upper floors and the feeble cases on the first floor, making the middle ward in each wing an infirmary ward, and by placing one convalescent ward of each wing under attendants most skillful at giving moral treatment. Then, by placing in the wards where moral treatment is being given, very few patients who require much nursing, these male and female attendants, who are the most apt at giving moral treatment to susceptible cases, can, by classification, be relieved of drudgery.

DR. PRATT: I would like to add one further word. Attention has been called to attendants. They are to a large extent our observers, and executive aids. There is an additional idea which has been more or less clearly brought out here, but which seems as yet to lack definite expression. In the moral treatment of insanity, if you have the proper attendant, he is not only your eye, ear and hand—he is your medicine! If that simple thought is properly elaborated and put before our Legislatures and the public in a proper way—that we do not depend so much upon mere medicine, do not believe that the attendant is a mere menial around the bed-side; that we cannot prolong life successfully, or aid in it materially without the faithful attendant; and that it is the intelligence and moral influence of the attendant that is our main reliance, not *materia medica*—I think, if that idea is properly brought before intelligent people in our several States, that it will aid very materially in securing such appropriations as will enable us to secure the men who have natural fitness for these duties, and the required accomplishments in performance of them. I used to remark, when a military surgeon, that like poets, “Nurses were born, not made.” It is particularly true of men. We find few men that seem intuitively to know how to work around the bed-side; but with women it is

almost invariably the other way. And when we find men fit nurses, with the quality so scarce, I think we should do all in our power to induce the Legislature to appropriate such sums as shall enable us to pay wages that will keep such capable men that are so scarce.

Dr. Granger in closing the discussion said:

Dr. Hurd has given me too much credit, and his modesty compelled him to neglect to state the valuable services rendered by his brother, who is the second assistant in the Buffalo Asylum. Dr. Arthur Hurd gave all the instruction in general nursing and emergencies. Dr. Hurd also omitted the name of Dr. Andrews, who has advanced and helped the school from the first. Except for that help and encouragement, the school would not have lived to become a success.

In reply to Dr. Wilkins, who suggests that there is less work to do in a small asylum, and therefore at Buffalo a training school can be established, and not so easily in a larger asylum, I would say, we had all we wanted to do before we begun the school, and never had much time for idleness. As the work goes on and the attendants become well trained, the labors of the physician are lessened, because the attendants are able to do many things which before had to be attended to by the physicians. For instance, there are at the present time in the asylum, five women requiring to be fed with a tube. Four of these are fed by attendants that have graduated.

Although the asylum at Buffalo is small, having a population of about three hundred and seventy-five, there are admitted and discharged a larger per cent. than at any asylum in this country and with but one exception in England. Last year over ninety per cent. of the men patients were new admissions, and eighty-five per cent. of all. This year we shall admit not less than three hundred nor more than three hundred and fifty, and discharge as many. The care of so many new and acute cases falls upon a small staff. It must not be thought we had time unemployed before we begun the training school. The time we give to the instruction is largely taken from our leisure hours.

Gentlemen who have spoken, while commending most heartily the establishment of schools, seem to see great obstacles in the way. These I think they exaggerate altogether too much. Like all other difficulties, they will disappear in the face of earnest efforts made to overcome them. I would advise unless everything is ready for the formal establishment of a school, to begin in a small way. Call the attendants quietly together, and give them instructions in the rules. To this there can be no objection. Then, as quietly, extend the instruction and give lectures on physiology, anatomy and hygiene. Perhaps at first it would be as well not to require attendance. Soon you will have a training school on your hands, and the authorities that rule over the asylum must take notice of it, and either sustain it or let it die for want of support. But, if a school cannot be established, much can be done, in a less formal way, to give instruction.

The instruction, to be of use, *must* be made interesting and practical. It is a somewhat difficult task for the instructor to acquire the ability to teach attendants. It requires practice and study to make the lectures, at once simple and interesting, and at the same time, practical, instructive

and sufficiently comprehensive. It requires practice to teach them in the recitation room; to be able to drill and train minds not accustomed to study, and which are often rude, and sometimes dull. Carefully going over a subject, by lectures and recitations, until it is learned and understood, is necessary, if the attendants are to learn and profit by the instruction. Holding their attention, stimulating those who desire to learn, encouraging those that are discouraged, patient with those that plod, will in the end reap a rich return, and bring from the attendants warm expressions of appreciation for your labors.

Having once learned the art of lecturing to, and teaching attendants, the work is easy and pleasant. And you will soon learn to appreciate the truth of the statement, made in the paper, that any person, fit to be an attendant, and who can read and write, can, if he will study, learn all that is taught in a training school.

I would therefore earnestly urge, that you shall not be deterred by thinking of the difficulties attending the establishment of a school, but, considering its disadvantages, you will overcome obstacles and show your belief by securing success.

DR. GRISSOM: Dr. Granger has made a statement that has attracted my attention. He said a large percentage of the patients in the Buffalo Asylum had been changed during the year. I would like to know how this can be done—how the change can legally be made.

DR. GRANGER: We changed last year about eighty-five per cent. of our patients. This year we shall change nearly one hundred per cent. of the men. It is regulated by the law of the State. There are four State Institutions for the care of the acute insane and two for the chronic. Many of the counties make proper provision for their chronic insane and are allowed to care for them. For instance, Erie County, in which Buffalo is situated, has an asylum with three hundred and fifty inmates. Many patients are brought to the Buffalo Asylum that are chronic, incurable and who offer little hope for improvement. They may remain with us but a few months, and are then sent to a State Asylum for the chronic insane, or to a county institution. Others who offer hope of recovery or improvement, so as to be able to return home, may remain two, three or even four years in the asylum. The law of the State, puts it upon the superintendent, who shall be discharged to the Chronic Asylum, and what patients shall remain for treatment.

DR. HILL: I would like to ask Dr. Granger if there is any law as to who shall be sent to chronic and who to curable hospitals?

DR. GRANGER: There is no law. The poor authorities make some distinction, but mostly all cases are brought to the curable hospitals, and it is left to the authorities there to sift out those that shall remain, and send away those that cannot be benefited by treatment.

DR. BRYCE: Mr. President—As it is quite early and you have been very courteous in calling upon every gentleman present to express his opinion upon the question before us, I think I express the general sentiment of the Association by calling upon the President for his views.

DR. EVERTS: Gentlemen of the Association—I have nothing to add

to the general expression that has been made upon the question of training schools. I have been particularly gratified by the general approbation expressed respecting Dr. Granger's paper; gratified for more than one reason, but especially because of evidence given of a new infusion of the spirit of progress now animating the members of this Association. The tendency of this, as of all Associations, is to grow old, as is evidenced by the gray hairs that we see around us; and the tendency of the age is toward retrogression, as we all know, though I hope never to grow so old myself as to go backward. I am also particularly gratified by the fact that this paper is a vindication of the wisdom of our action last year (for which I take some credit to myself), in introducing to this body a new element—that of the assistant-physicians of our hospitals for the insane. I think that the vindication is complete, and I wish to express my personal gratification to the assistant-physicians who have met with us this year.

On motion of Dr. Bryce, it was

Resolved, That the discussions of this evening be of a general character.

Dr. Pratt introduced Father O'Brien, member of the Michigan State Board of Charities and Corrections, sent to this meeting as the representative of the board.

The President read a dispatch announcing the death, early this morning, of Dr. George C. Catlett, of Missouri, a member of the Association.

On motion of Dr. Grissom the Association adjourned, in honor of the memory of Dr. Catlett.

The Association was called to order at 7.30 P. M., by the President.

An invitation to meet in Detroit was referred to the Committee on Time and Place of Next Meeting.

DR. EVERTS: The omnibus "bill" is now before the house, and Dr. Hurd has the floor.

DR. HURD: I regret that a more able conductor of the omnibus discussion has not been appointed. But I suppose all that will be necessary for me to do will be to suggest certain topics, which will be discussed in an informal manner this evening. The first topic, which occurs to me as deserving discussion, is that of open doors in connection with asylums. Many of the superintendents of the different asylums in the country have been trying open doors—not universally—but certain open wards for certain classes of patients. Others have tried a system of parole in lieu of

the open door. My object in suggesting the topic was to find out the individual experience of the different superintendents.

A number of years ago, when I was at Lenzie, at Dr. Rutherford's institution, I found every door unlocked, and that patients were allowed to come and go, under the supervision of the attendants, very much as they pleased. At that time my impressions were unfavorable. I inquired whether accidents had occurred in consequence of the open doors, and learned from Dr. Rutherford that two men had taken advantage of the open doors during the past year, had gotten upon the railroad track and had been killed; but the Doctor said that might have occurred had all the doors not been opened. From what I saw, however, I became opposed to the open door system.

During the past two years, I have had occasion to try it with a certain class of cases, and my objections have, in a measure, disappeared. There are other superintendents here who have tried it to a greater extent than I have, and I shall be glad to have their experience.

DR. CALLENDER: Though Dr. Hurd has had experience on what is called the open door system, I cannot say that I have. I would prefer to wait and hear from gentlemen whom he has indicated as having had experience in this system of open doors with chronic patients. I have had no experience of that kind.

DR. HILL: I have not had open doors as a system or general rule, but I generally have a few wards with open doors in summer. My experience is that the open wards are not advantageous wards for convalescent patients, especially men. I think that one of the objections to open doors is that it results in the loafing of patients; it makes loafers of them. They stroll around the farm, and watch those that we are trying to get to work. The very best male ward that I have in my hospital is not one with an open door. I very seldom put male patients that promise to recover in the wards that have open doors, because I think it will do those patients a very great deal more good to be occupied with work, and to be methodical in the way of spending their time, than to have them strolling around the campus in an aimless manner. I think that nothing more thoroughly qualifies a patient to go home than to get him into the habit of working several hours a day. That is one of my objections to putting convalescent patients in these wards with open doors. I think there are quite a good many disadvantages to them as well as some advantages.

DR. PALMER: We have at Kalamazoo, at the present time, eight wards with open doors; four are occupied by quiet or convalescent patients, and four by demented patients that have been under treatment for several years and have become wonted to the asylum. We have been much pleased with the experiment and the results attained.

A few years ago we had no open doors; in fact, did not give our patients as much exercise in the open air as now, and none at all on the Sabbath, and it was noted that they were more disturbed than when they had taken long walks. This led to our giving patients exercise on the Sabbath, as was our custom during the week.

The next step was to permit convalescent patients to walk out unat-

tended, in parties of three, in order to guard more effectually against accidents and improprieties that are liable to occur. This extension of liberty added much to the comfort and contentment of patients, and our confidence has seldom been betrayed. Patients remarked that it was a great privilege to walk out alone; and the idea of confinement was in a great measure relieved.

The next innovation was to leave the doors of the female convalescent hall open, and all the patients were permitted to go out as they pleased; this was our first open door hall.

DR. EVERTS: What do you mean by "open door hall?"

DR. PALMER: I mean that the outside doors are left unlocked, and patients permitted to go out and in as they wish, under certain regulations.

DR. EVERTS: Night and day?

DR. PALMER: No sir; only during the day. The patients do not leave the halls after dark, or go to town without permission. All are expected to be home at meal-time.

Afterwards, other halls were left open, as patients became able to enjoy these privileges, and now we have eight halls with open doors, as before stated. Of course the condition of each patient is carefully observed, and all those actively disturbed, the suicidal, the homicidal, and those with delusions of distrust or apprehension, are excluded from these halls; those recently admitted are treated at first on halls with closed doors.

During the past year I have directed the doors between the disturbed halls to be left open, so that, entering the wards, one can pass through the entire flat without unlocking a door. The patients are instructed not to leave their respective halls, and seldom disobey, though, frequently get permission to go visiting.

The idea in introducing these changes, is to stimulate as well as cultivate habits of self-control. The more patients are trusted the more contented they become, and the more readily will they, in my opinion, regain lost faculties. If patients can be taught to remain on their halls with open doors, it is reasonable to suppose that they can eventually be taught not to wander away, while enjoying the freedom of the grounds.

At the suggestion of attendants and patients, the asylum settees have been removed from many of the halls, and chairs substituted. Chairs are much more comfortable, besides they relieve the wards somewhat of their distinctive features. I have the feeling that all appliances suggesting restraint or lack of self-control, should be removed so far as practicable, as they are requisite only in exceptional cases, and tend to provoke destructive impulses among a certain class of insane. Patients have frequently said that they did not fully give way to their morbid impulses until they were placed on halls designed for disturbed patients. The incentives to self-control were thus removed and the wayward tendencies got the ascendancy. On the halls where the settees have been removed, and chairs and various ornaments introduced, a radical change for the better has been noticed. Pictures on the walls, and vases on the tables, are seldom, if ever broken, even by the most disturbed patients.

The airing courts, so-called, about our institution, have all been

removed. The enclosures are not so necessary for exercise of any class of patients. They invite neglect on the part of attendants and bring many patients together that exert a deleterious influence over each other.

In conclusion, I would say that the policy of our institution is to grant greater liberty to patients, to do without restraint so far as practicable, and instead of attempting to suppress morbid activity, rather to direct it into healthier channels.

DR. MILLER: Mr. President—Seven years ago, after the classification of the patients at the upper asylum, I removed all the screens from the seventh male ward, and allowed three outside doors to remain open during the entire day. Nearly or quite all of my patients, numbering fifty in that ward, were workers on the farm, in the garden, laundry, kitchen or elsewhere. Some time afterwards I removed the screens and left the doors unlocked of the seventh female ward, containing an average of forty-eight patients. In those two wards, when the patients are not engaged in work, they have the same privilege of going out of the house and over the grounds that the employees have. Many of these patients take the liberty of going to Cincinnati and returning. The last screen I removed was from the fourth male ward, with an average of forty-one patients. Now they will seldom leave the grounds except by reporting before going. In a few instances they have. I remember but one man who went away without asking. The others, if they did go to town and take dinner with their families, invariably returned before supper.

Upon the two working wards—the seventh wards—when vacancies occur, I keep the ward filled from the convalescent patients. Possibly as many patients are discharged recovered from those two wards, as any other two wards of the asylum. Out of my daily average now of seven hundred and twenty-one patients, four hundred and seventy-five of them work either in the ward, laundry, sewing-room, wash-room, kitchen, farm and garden, or grounds; and if we were not so crowded in our wards, if I could reduce the number of patients to twenty or twenty-five in a ward, with two attendants, I believe I could remove the screens from one-half of the wards, and retain the patients in the asylum with no damage. There are patients that I do not think would be benefited by giving them so much liberty; but in this case, where we average twenty patients to one attendant, and where the wards are as full as I can place bedsteads, I cannot have an additional number of these open wards. When our additions are completed, I expect to put them up without screens. I expect to do as much as I possibly can upon the subject of freedom with all patients who have sufficient knowledge and sense of justice, to avail themselves of it, and return at the time agreed upon.

DR. POWELL: We extend to our patients all the liberty or freedom compatible with their condition and the welfare of the community. There are but few wards in the male departments of our institution that some patients do not go in and out at will. We have four or five wards, for many years, the doors have generally been kept open during the day. These, however, are occupied principally by the harmless chronic insane. I do not attach so much importance to the doors being open. If the patient has permission to go in and out at will all he has to do is to ring the door-

bell and the attendant opens the door. With proper and judicious freedom, there cannot be any doubt whatever as to its promoting contentment, and as to its ameliorating and curative influence. I could refer to many cases in which their improvement and recovery was principally due to these means. I regard it as a very essential feature in the treatment of the insane; hence the reason for so much liberty with us. We endeavor to make them feel as much at home as possible, encourage them to take outdoor exercise, nor do we object to their sitting about on the porches of the center building, reading and talking. Our front yards are never free from some of that class of patients, the weather being suitable. Many of them frequently remain out until nine or ten o'clock at night, engaging in various games of amusement in the center building; frequently the families of the officers join them in their games; this tends to make them more contented. And in many cases of chronic mania those that are subject to periodical attacks of excitement, we allow them out at will during a lucid interval, but have them remain in the ward when nervous or excited. As a general thing they seem to appreciate the necessity of their being on the ward during a paroxysm of excitement. We allow no one to go to the city or depots without special permission; some of them occasionally go into the city alone by permission. This has been our mode of treatment for many years, and I have never seen any good reason that would justify me in changing it. We have a patient occasionally that goes out without the observation of anyone, to escape, but not so many as those that are under more restraint or constant observation. I suppose we have about one hundred and fifty that go out without the observation of anyone. No female goes out, unless in the back yards, without an attendant. We have quite a number that work out in the farm and gardens, etc., but I have a class I find it almost impossible to get to do any work. That class is principally the doctors, lawyers and ministers; but my observation for the past twenty-four years has led me to the firm conviction, to make the treatment remedial, the constitutional and acquired differences in the habits and tastes of the patient should be carefully considered, and their surroundings and employment should be made with a due regard to it. The same routine cannot be relied upon for all classes. If these differences in the former habits and tastes are lost sight of, in my judgment we cannot accomplish the good desired. Now as to the iron sash, I cannot see any objection to them if they are properly made. Our iron sash are made exactly like the inside wooden sash, and painted alike. No one would observe that it was iron unless closely examined. We have a detached building that accommodates about sixteen or eighteen patients, and which has been occupied about twenty-five years, that never had any iron sash; this building is occupied by a harmless class of patients, many of them almost helpless. My patients never complain of the iron sash, and I cannot see how it could prove detrimental in any way. Then I am under the necessity of receiving any patient in the institution that makes application if legally committed, and a fit subject for the asylum, if I have a vacant room; so you can very readily see that I would be at a loss to know what to do with a violent suicidal case sent to me. To put such a patient in a room without a secure sash, the patient would in all probability commit suicide or escape.

As to restraints, we never had many. I have been connected with the institution for twenty-four years. There has never been a crib bedstead in it since my connection with it, nor do I think my predecessor ever had. We have occasionally used the camisole for patients laboring under a delusion that they are commanded to pull out the right eye or tongue. I am glad to say such cases are very rare with us. With twelve hundred patients we have not had such a case for eight or ten years. I would not hesitate to use the camisole in such cases now if necessary.

Dr. GRISOM (having been called upon in turn): Having just come in I prefer to waive my right to be heard just now; but I will remark in this connection that our custom in the institution with which I am connected is to give the largest liberty—the largest freedom compatible with what we consider the safety of the class and individual patients interested. My experience is limited, not having had at any time a great number of patients under my care. Most of the cases are each to a very great extent a law unto themselves, and they must be governed according to the particular characteristics of each patient or the class of patients to which he belongs. Our custom is, as I said, to give them the largest freedom compatible with safety, and to encourage them in every way we can compatible with their strength, to do work of various kinds.

And in this course I have had no cause for regret. The institution, in an experience of thirty years, has had no suicide, and but one homicide. This practice of liberty and freedom we are constantly increasing from year to year.

In this connection I would say, inasmuch as restraint has been alluded to, that we use the minimum of restraint or seclusion. There are cases, however, in which some restraint may be an actual mercy to the patient; and I use it not as mechanical restraint but as mechanical protection. These cases are rare; but they may occur where it would be the greatest cruelty to the patient and to those who surround him, not to throw around him that protection which temporary restraint sometimes affords.

DR. RICHARDSON: Ten years ago last March, when I went to the Athens Asylum under Dr. Gundry, I was instructed that in the moral treatment of the insane, the principle which was most important and should govern was, that we should attempt, in all our efforts in this direction, to recover for the patient his self-control, and bring it back to a normal standard by utilizing the degree of self-control he had remaining. That has been my principle of action in what I have done, and in what might be called the moral treatment of the insane. In 1876 we removed the last pair of sleeves from a patient who was in the habit of denuding himself every few minutes; and since that time, except for about two or three years, when the administration was changed, there has been no mechanical appliance used in that institution. I cannot but think in my own experience there has been a decided benefit. Of course I speak only of my own experience, and do not have any disrespect for those who think differently. Last year we had solitary confinement amounting to eight hundred and sixty hours, with an average of six hundred and thirty patients, three hundred males and three hundred and thirty females. Two hundred and thirty of these eight hundred and sixty hours were in the

case of an epileptic female who was secluded during her paroxysms of epileptic mania.

In 1877, Dr. Rutter, then in charge of the institution, opened two wards accommodating twenty-five patients each, one for males and one for females. The doors were unlocked at six o'clock in the morning, and remained unlocked until eight o'clock in the evening. These patients were allowed to go and come at will, simply restricted to the grounds about the institution, and if they went further, it was necessary for them to secure special permission. Within the last five years, since I have had charge of the institution, we have extended this open door privilege to five wards, with an average of one hundred and twenty-five patients in them out of six hundred and thirty. I have never known an accident to result from the open door system; on the contrary, I think it has undoubtedly been decidedly beneficial. I believe that it is not beneficial to all individuals among the insane; to some it is demoralizing, to others it is very great encouragement.

In this connection, it seems to me that there is one other principle in the treatment of insane in the institutions, which ought to be kept prominently before us, and that is, that the insane have a very decided, though changed individuality, just as much as the sane; and that we should treat them in institutions as individuals, and that each case should be studied separately and on its own particular merits. Now of course, we all agree with that, and yet the tendency of institution treatment is to the treatment of the insane as classes, and not as individuals.

Now it is our custom, whenever a patient comes to the institution, to attempt to gain as much information as we can from those who bring him, as to the peculiar characteristics of the case. If the friends accompanying the patient are intelligent, we can sometimes gain such information as will permit the putting of our patient in an open ward. We have several times done that with very good effect. We have a case now that came to us about six weeks ago, that is now ready to go home; a very nervous, overworked wife, who had all the responsibility thrown upon her by the absence of her husband, at his occupation. She needed rest, and by putting her in the open ward, she was particularly pleased, being under no more imprisonment than she would have been in any general hospital, and it could not have been strictly called restraint in any way. She has improved from the first day, and without any feeling of restriction as to her personal liberty. Now I cannot but think, that that kind of case is benefited by a ward and course of treatment, where personal liberty will not be unduly restricted.

In addition to the practice that we have of unlocked wards, we extend the privilege of parole to an average of about one hundred and eighty patients out of six hundred and thirty. The number varies from one hundred and seventy-five to two hundred. We have an average of about fifteen males and from twenty-five to thirty females, who, from their physical condition, are unable to take out-door exercise. All others are given out-door exercise every day, when the weather is suitable.

Four years ago, I came to the conclusion, that the use of airing courts was certainly demoralizing in some respects. I do not know that I ever saw what the benefit was, when we put the patients out in the airing-courts.

The wall was high, and consequently the attendants thought it was not necessary to watch very closely, and they did not. Once in a while we had a patient get on the shoulders of another and get away. I have stopped that altogether. We have a regular order to take the patients out upon the grounds, each ward separately, and exercise and walk about wherever it is found best to do so, or to sit under the shade of the trees. During the last six months I think we have had three elopements. One has been returned, one is at home, and one went away just a few days before I came away. Neither one of those had been granted the privilege of parole. We have had an occasional suicide.

DR. EVERTS: Please describe what you mean by parole.

DR. RICHARDSON: By parole I mean going out of the wards, or about the grounds unaccompanied by an attendant.

DR. EVERTS: Sometimes it means to go home.

DR. RICHARDSON: These are not always given the widest liberty. Most of the patients in the open wards go out of the wards and come at will. There are certain females who are not permitted to go out of the wards, except in company with another patient. There are certain others in the locked wards, who are not permitted to go out except accompanied by another patient. I have found in addition to this, that in the locked wards certain patients can be permitted to go out to do work and do errands who otherwise would run away. There was one man who did run away once, and since then I have sent him out with a bucket and other things from the table. Some one asked him why he didn't run away. He said he would have to bring the bucket back. I believe one of the secrets of the treatment in this respect is the fact that we have confidence in the patient. This may seem poetry, but in my experience, young as I am, of ten years, whenever you get a promise from an insane person to do a thing, he has to be very much beyond his self-control if he does not attempt to do it.

By thus treating each case individually, learning everything possible of the individual traits and peculiarities, and by gradually extending his privileges until he is brought as nearly as possible into the environment of a sane person, I am convinced that we have taken the safest means to fix him for home life with its trials and responsibilities. I occasionally find, in our open ward, a patient who will not work. But it is one of our rules, before we let a patient go to these wards, to secure a request to permit him to go, for if he does not want to go it is not going to be a benefit to him; and we let him go under the promise that he will do some stated work. We give him a regular task of that beforehand, as some scrubbing of a part of the building, the carrying of water, or assisting the chambermaids, and work of that or other kinds. Some assist in the laundry or about the mangle. We have, on an average, one hundred and seventy-five to two hundred, of the six hundred and thirty, that are employed outside of the wards, in addition to the two hundred and twenty-five that assist in the ward work inside. We have found certainly that all these methods that go in the general direction of individual responsibility of the insane have had a very decided benefit. I do not mean to say that we have any

more of what may be classified recoveries, but it has made our institution very much more home-like and cheerful. They have certainly made our patients more contented.

I believe that solitary confinement, that Dr. Grissom speaks of, is about as injurious, if kept up systematically, as any treatment that can be used. I have seen patients kept in solitary confinement for years that unquestionably have been made what might be called wild animals by it. When I first went to the institution there were two patients that had been locked up in a room more than two years. To-day one is at home, and has been home eighteen months, and is getting along comfortably. The other has been removed to an infirmary as incurable and harmless. But one, after the effort made to get him out of the room, has become just as well as ever before.

In this connection I want to say that it cannot be done by unmitigated kindness. There has got to be a combination of firmness with kindness. We had an illustration of that not long ago, in a person who had been confined for a long while. When I first came into the room it took three attendants and myself to keep her within bounds—she was like a tigress—it took us three-fourths of an hour, she constantly struggling and using violent language, and swearing to do everything. Yet we simply held her there until she quit struggling, and then we got her up, fed and dressed her. Instead of using threats and menacing the use of other appliances, we were talking to her all the time, and in other ways trying to argue with her and explain the reason of our action; that we wanted to do that which was for her own good; to get her out with the other patients, and that we wanted her to enjoy life better than before. We dressed her and she got into a sullen stage. She stopped fighting, and would sit without talking to anybody. She sat there and did not talk during the whole afternoon. She finally made a leap at one of the other attendants. We had several within reach. They just put her down and held her about half an hour, until she got through struggling and promised to keep quiet. Next morning she threw off the bed covers, dressed and came out at once. She went along very nicely until that afternoon, when she made another attack. By holding her, inside of ten minutes she subsided and became quiet. Since that time, over four months ago, we have not had an outburst of violence on the part of that patient. She has not been secluded one hour. I went in the other day and saw her sitting at a table feeding a patient just as patiently as anybody, talking to her and urging her to eat—a patient in one of our disturbed wards, that had been admitted suffering with acute mania. I frequently go in there and find her holding a patient acutely maniacal, as we find it necessary to do occasionally, to prevent exhausting herself. Whenever they go out walking she goes with them, and has no disposition to go away. Now, there is a remarkable change, and the attendants tell me that she is one of the most obedient and pleasant patients they have to deal with. I cannot say how long this will continue, but every day shows new and improved traits in her character, and every day a change in the individual. Now unmitigated kindness would not have done that, nor indulgence in all of her desires; but rational treatment, combined with the necessary firmness and exercise of power,

showing that she is powerless herself, is what has enabled us to make, it seems to me, a different individual of her.

DR. EVERTS: What became of the last man that you took the sleeves off?

DR. RICHARDSON: There has been a gradual education of that individual. He had been confined in one of our county infirmaries for fifteen years, and never had worn a suit of clothing. He came to our institution and had to wear sleeves. I have seen him with his sleeves on, get his pantaloons off and the other side turned to the front. How he would do that I do not know. After we took off the sleeves he would take his clothes off twenty times a day. But we have got him in such a condition now, by constantly watching him and telling him not to do this, and by keeping an attendant around him or in his immediate neighborhood, that he is quite tractable. If he takes them off, as soon as he does it the attendant makes him put them on, until now the habit has been almost entirely removed. I saw him the other day tying his shoes as patiently as could be. We have not thought of putting anything mechanical on him; there has been an education in that respect.

DR. BLAND: When a patient violates his parole, how do you correct him?

DR. RICHARDSON: By putting him back into the same ward. I say, "You have not improved any, as you see. You have made that escape for nothing;" or, "you have gone a certain distance too far in the country and had to be brought back again. Now, we will let you go about again if you do not go away." It is sometimes necessary to do this more than once. I never think of keeping a patient in the ward because he ran away once.

DR. BLAND: Do you extend the parole, Doctor?

DR. RICHARDSON: Yes, sir. We let patients go away on parole. The fact is that we have no legal authority to discharge a patient unless discharged as recovered. However, we do frequently let them go on thirty days' trial. If they get along well the probation is continued for another thirty days, and within that time they can be returned without legal proceedings. Of course that is done after telling the friends of the patient that they must assume the responsibility.

DR. BROWN: We have no open wards at our institution at present. About two years ago there was an open ward established for a while, but it did not work satisfactorily. Perhaps the fault was in the classification. We have, however, about one-third of our women out on parole. That is, they come out from all the wards—the convalescent wards, the sub-acute and acute wards—and we have had no instance of escapes so far. But we have taken the precaution to have a day watch on the grounds, who has somewhat of a supervision over those patients who are out, to see that they do not leave the grounds. They usually come in at meal times, but they do not go out after tea; we do not allow any patients out on the grounds after tea. I think that with a proper classification we could have open wards, but the trouble is with us, we are so crowded that we cannot get a

proper classification. The changes, the transfers and the movement of population is such that we have thirty or forty patients admitted daily, regularly, and we receive so many acute cases that it has not worked as well as we would have liked.

DR. GRANGER: There are a few questions I would like to ask these gentlemen. One is in regard to the mingling of sexes outside; if they are allowed to meet, talk and be with one another, and how you prevent it. I would also like to ask in regard to open wards, those that are open from 6 A. M. to 8 P. M., if the patients, unless sick, ever see a medical officer, and how often; how much care is given them by attendants; if the patients daily do useful work, and for themselves; if it is something that enforces self-discipline and self-control; if in a systematic manner, medical supervision and attendants' care is daily brought to bear upon them, so that they have the benefit of the immediate influence of sane minds, regulating, restraining and directing them.

It seems to me, that, with unlimited parole, some of these means of treatment might be neglected, and I desire information upon these important matters.

DR. RICHARDSON: I believe they all receive proper medical attention before going out to their regular duties. As far as the mingling of the sexes is concerned, one of the usual promises is that they shall not do anything out of the way while they are out. I do not know of any accident occurring during the ten years from that cause. I never make any restrictions. If the female patients promise me that they are not going to talk to the male patients in any improper place, or in an improper manner, or communicate with them in that way, it is sufficient.

DR. GRANGER: There are at the Buffalo Asylum, about thirty per cent. of all patients on parole, and have been for nearly three years. It is a small receiving asylum, with a rapidly changing population. The wards are large, with but five for the men and six for the women. For an asylum such as this, parole seems better than open doors. Did we have open doors, I think a number of patients, that now enjoy the quietest wards, would have to be kept on wards less suitable and pleasant for them.

Two years ago, the first men's ward had open doors, but it led to a good deal of loafing, some misbehavior and violation of trust, and in consequence the doors were closed and the parole system again enforced. It is our custom to make a list every week, and the privilege is given to as many patients as possible, especially to those who ask for it. Some who are on the list refuse to go out, except with a party and under an attendant. Patients are on parole from every ward. Parole is explained to them to mean that they are placed on their honor not to violate the privileges given them; that the locks, guards and sort of sentinel duty of the attendants is not for them. There is no unlimited parole, but all are expected to observe certain requirements, some of which are general and some are adapted to a particular case. The patients are not allowed to be out all day in idleness. Generally, some employment, which is in itself beneficial, to the patient, that helps to promote self-control, regular habits, and prevents loafing, is encouraged and required. Healthful, out-of-door

exercise, is also insisted upon. Many of the men do regular out-of-door work, both morning and afternoon. All patients are daily seen by the physician, and a part of the day are under the immediate care and oversight of the attendants.

Almost unlimited parole seems objectionable, though I am glad it has been reported otherwise by gentlemen here to-night.

DR. MILLER: So far as Longview is concerned, the male patients never cross to the female side of the building, and the females never cross to the male side. They are as much separated as they can be at any place. So far as the attendance of the physicians is concerned, they see every patient every day, either once or twice.

DR. GRANGER: How can that be if the doors are open and they are bound by no rules or regulations?

DR. MILLER: There are very good rules and regulations—at least we think so. We think every patient is seen twice a day, as carefully as though locked in the rooms, large or small, with iron grates on them, like you would put on a penitentiary.

DR. POWELL: In regard to their going out, as I stated, there are none of our female patients allowed out without an attendant. They are constantly out, but always some female attendant with them. As to the male patients, they usually come to the office in the center building before going out, and there they are seen in the morning, or some time during the day.

DR. GRANGER: That is the answer I wanted.

DR. POWELL: We have a right to extend the furlough for ninety days, and the patient can be received back into the asylum without a new commitment. We frequently extend the furlough longer, provided they are all right; and if they make any trouble about coming back we get a new commitment.

DR. LONG: I would like to ask one question: Did not Dr. Hurd mean to say, when he spoke of the open door system, that they let the patients go out without attendants? Now, as I understand this gentleman who answered Dr. Granger, he has attendants with them.

DR. POWELL: I think you misapprehended me: I said female patients.

DR. LONG: That is the point I want to make. In caring for your patients, how are you going to care for and cure your female patients, if you cannot place the same confidence in them that you do in the male patients?

DR. RICHARDSON: Dr. Granger asked one question in regard to the medical treatment these patients get. We have never found any difficulty in that respect. Of course the giving of liberty does not mean that they are out all the time. Upon going through our open wards you will find a number of patients sitting in them; and you never find, or, I may say, you seldom find a person needing medical attention out of the ward, especially if he needs a particular remedy. It is made a part of a nurse's special duty to report if a patient under his care needs any particular

medical attention, and he is directed to remain in if he does so. We have never found this system leading to neglect of patients so far as medical remedies are concerned.

DR. POWELL: I might also state that our patients are required to be in, regularly, at meal hours. If anyone is missing at that time he is promptly reported.

DR. QUINBY: The asylum with which I am connected only receives patients from the other hospitals of the State. These transfers are made through our Board of Lunacy and Charities, whenever either of the hospitals become crowded and additional room is required for recent cases. The cases for transfer are selected by the superintendent of the hospital from which the patients are sent, and are usually such as have had a long hospital residence; from three to four years on an average. They are all supposed to be incurable, and are, for the most part, either without friends to care for them, or are unsuited to go at large, from the nature of their disease. Now and then a patient recovers, or his condition so far improves as to warrant his discharge, but the vast majority are only set free by death. To the greater number of its inmates, therefore, the asylum becomes a life home. In our treatment we endeavor to make their surroundings as home-like as possible, and to give to each individual all the liberty he will bear. One-third of our wards are open and the patients, with few exceptions, go and come much as they like. Some go about the city unattended, the only restriction in their case being that they must return at a stated time. Others are allowed the liberty of the grounds about the asylum, while still another class are not permitted to leave the ward without special permission. Now and then a patient abuses these privileges, but we have experienced but very little difficulty in this respect, and have found that these little liberties increase the self-respect of the patient, make him more willing to yield a cheerful and ready obedience to the rules of the asylum, and stimulate him to keep his parole and confine himself to the bounds laid down for him, in the hope that these liberties may be extended still further. Indeed, I have come to feel that the more one trusts such patients, the more deserving of trust they become.

All who are able to work are expected to join in some employment, a portion of the day at least, and, as an inducement to do so, they enjoy greater liberty and a more liberal diet. They room upon open wards and their movements are subjected to but little restraint. They go back and forth to the kitchen, laundry, farm, or wherever they may be employed, much as they please, and not unfrequently leave the grounds after their work is done. Their ward is never locked except at the time of retiring for the night.

We long ago did away with the old airing courts where formerly patients were turned out, unattended, to wallow in the dirt and abandon themselves to their degrading habits. On first going to the old Worcester Hospital as an assistant, these airing courts, barren and cheerless as they were, struck me as being one of the worst features of the institution, but I then supposed that they were necessary adjuncts of an insane hospital, and the only practicable method of getting a certain class of patients out of doors. But now the fences enclosing these grounds are removed, and all

our patients go out upon the green in front of the asylum, and as our grounds are surrounded by some of the most busy streets of a large city, our patients are at all times under the inspection of passers-by. I have not thus far seen any objection to this place, and I think, and in fact know that the change has had a good influence upon both patient and attendant. The patient, having something to occupy his attention is more careful in dress and deportment, while the attendant feels an additional responsibility and becomes more watchful. Since adopting this plan we have not had more escapes than formerly. Our grounds are so arranged that there are but two means of ingress or egress, one on either side of the house, both of which can be easily guarded without any apparent effort on the part of the attendant, and if an escape is attempted, the attempt is at once discovered and readily prevented. We have had some escapes from the open wards, but they have been few in comparison to the whole number enjoying these privileges. In most cases the escape has been prompted more by the restless and wandering disposition of the patient than by any desire to get away from the asylum, as is shown by the fact that almost all of those escaping have returned voluntarily; two, after being three days away; another, after a week's absence; and still another, after being gone some two or three months.

I was much interested in the remarks made by one of the gentlemen here to-night in regard to his method of curing a case of solitary confinement, for the reason that I have had a patient thus confined for several years, on account of her violent disposition and her inability to get along peaceably with her fellow patients. This case troubled me exceedingly, as the patient grew worse rather than better under this form of treatment. An interview with her always resulted in her becoming highly excited, and usually ended in a scuffle before it was possible to leave her room, followed by an hour of raving and pounding on her part. I tried many devices to break up this habit, but without success, until I made up my mind to take her out of her room at all hazards, and, if it became necessary to restrain her, to do so upon the ward and by other means than by lock and key. In this attempt I had the co-operation of two very determined and judicious attendants, and really experienced much less difficulty than I anticipated in bringing this patient to associate with her fellows and to understand that she must control herself. No restraint of any kind was used. From the very first day that her door was unlocked she began to improve, and is now, as a rule, one of the most quiet patients upon the ward. Whenever she does become disturbed, her excitement is no longer marked by the violence which formerly characterized it. She is readily controlled, going to her room when told to do so, and sitting down quietly without her door being locked or shut. This was certainly an unpromising case, and the result accomplished was perhaps more favorable than can be looked for in a majority of such cases, but it has certainly led me to question whether better results can not be attained by firmness and kindness than by seclusion or mechanical restraint.

DR. FISHER: I have had no experience of this kind, and do not care to theorize. Our hospital is in the thickly settled part of Boston, and therefore I have not tried open wards. The sexes are not able to be out at the

same time, on account of lack of ground. I expect, however, in the course of the next six months, to have an addition to the hospital in the shape of farm of seventy-five acres, in the suburbs, for the quiet and convalescent insane and those able to work upon a farm. I shall certainly try the experiment of open wards when I succeed in getting that additional establishment. I see no reason why this class of patients in general hospitals may not be allowed the privilege of open wards without any detriment to themselves or to others.

DR. CAMPBELL: I wish to say in this connection, relative to hospitals for the insane having locked or unlocked doors, that I have but little experience on the subject.

DR. RODES: Relative to open doors, I have had no wards in which we have tried it. We have two or three wards that I shall try to make the experiment with. It has never been tried in our hospital at all.

DR. BLAND: In our hospital we have two wards that are always unlocked, sometimes four. In the other wards the greater number of the patients are permitted to go out of doors daily, always under the supervision of attendants. The sexes are not permitted to associate on the grounds. The officers all reside in what is known as the Center Building—and the female patients occupy the wings on the north side and the males on the south side. There is a farm adjoining the building, of about three hundred acres, upon which a great many of our male patients have daily employment.

Many of the females work in the laundry, kitchen and sewing-rooms. Our rule is to allow the fullest liberty to the largest number we can. From two hundred and fifty to three hundred inmates take daily out-door exercise, whenever the weather will permit. We believe it advisable to use restraints, but never permit attendants to use them, except by order of one of the physicians, unless in urgent cases, and then immediate notice must be given to one of the physicians. The windows in what are known as the strong rooms are particularly guarded by wire netting on the inside of the windows; all other windows have iron sash guards corresponding with the lights of the windows.

DR. WILKINS: I think this matter has been pretty fully discussed. We have no open wards at our asylum, but allow the patients as much liberty as possible. They go out upon the grounds every day—those who are in a satisfactory condition to do so—and we all recognize the fact that while we are dealing with a people supposed to be irresponsible, we treat them on the ground of responsibility all the time. We always have attendants on the grounds to prevent the escape of patients, and we exact of the patients when they go outside that they will not go beyond the limits prescribed. We give to many of them paroles to go where they please within certain limits of time. We let some out earlier than others, as soon as breakfast is over, and they go out in groups of two or three or more, and return always at meal hours. We let them out upon this condition. While they go out upon the grounds, the sexes never mix; the males being on the north side and the females on the south, an imaginary line between and the center building. To some of the women we extend the privilege

of walking to the gate, a quarter of a mile off, others to the reservoirs, with attendants. Many of the female, as well as the male, patients are permitted to go to church on Sunday, on their promise to return as soon as church is over. I believe we all recognize the fact that the greater the liberty we give to the patients the better for them, provided we have due regard for their safety and the safety of the public.

In regard to the moral treatment of the insane, I think we are also agreed that occupation, employment and amusement, are more necessary even than medicine. If we have a case of fever, pneumonia or any other disease, we must treat it as we would if they were not insane. I believe in discipline—regulating the life and habits, regularity in going to bed and getting up and the fact that they are not permitted to overload their stomachs—all these things have a tendency to return them to health. We desire to make them as comfortable and happy as we can, and employ them in various kinds of work. We have a large tract of land upon which to raise all our vegetables and in order that we may have our own milk; and were it not for the assistance of the patients we would have to employ very much more labor than we do. We have them everywhere, and when they get through with their duties, are permitted to go out for a certain length of time.

In regard to the subject of restraint, I will say that I have tried to prevent its use and have succeeded to a great extent; but I have cases now where I think it would be cruel treatment not to use it. My friend from North Carolina, Dr. Grissom, hit the nail on the head when he said “mechanical protection” instead of “mechanical restraint.” We have no cribs in our asylum, but I have had occasions where I could have used them properly. Out of ten thousand cases in the past few years, several, I think, would have been benefited by their use. We have a few chairs, called locked chairs, in which I place paralytics and dementia cases, who fall off settees and benches and injure themselves against the cornices and walls; and in order to prevent this injury to themselves they are placed in these chairs when the attendants are otherwise occupied. This is the kind of restraint which is such a bugaboo with some people, but it seems to be absolutely necessary for the best welfare of these cases.

In regard to the window guards, my experience has been rather sad. I had been to Europe and had seen the open doors and plate glass windows, and all that kind of thing, and the superintendents had told me there was no danger. I tried to carry that plan out in our institution, and the result was, three or four patients jumped out and broke their necks; and I put the window guards in again; or rather, I put in a net-work of wire, painted, that is not uncomely, but prevents the escape of the patients and protects the windows from the inside; and I feel much safer than I did without.

In regard to our courts, it seems to me with fourteen hundred patients, as we have, there must be many who cannot go out with the limited number of attendants that we have. Our airing courts, containing about an acre each, are four in number; two for the men and two for the women. We have also a ten-acre enclosure, surrounded by hedges, and are preparing two parks, one of twenty-two acres for the men, and one of fifteen acres for the women. We expect in the course of a few years to get all

our patients out of the court-yards, and I think it will be a very great advantage.

I believe that one objection raised by a gentleman on your right, and also spoken of by Dr. Granger, is a very good reason against open doors; it leads to loafing, and dissatisfaction on the part of those who will work. If they see others lolling on the ground they do not feel as much like going to work themselves.

In regard to furloughs, like Dr. Powell, we give leave of absence for thirty, sixty, or ninety days; if the patient is pronounced well and reported so, we discharge him. If necessary to send the patient back, we take him at our own expense. That saves the trouble of handing him up to the court and bringing him, as they do in our State, in irons. I don't know how it is elsewhere, but with us the sheriffs have not abandoned the practice of bringing patients to the asylum handcuffed, and I have been opposing it a long time. Sometimes they have sores from this that are very difficult to heal.

DR. POWELL: What employment do you give those who are not in the habit of doing manual labor before coming to the asylum—doctors, preachers, lawyers, and others?

DR. WILKINS: We do not have many of that class; but I let them try to work also. Sometimes I have them go into the clothes room and paint the names of some of the patients on boxes, or mark the clothes, or anything they can do. Some I send to the store-room to assist the steward in any way they can. But we do not have many unaccustomed to labor.

DR. GRISSOM: You have no preachers in California?

DR. WILKINS: We have some, but I believe the most of the preachers have remained in North Carolina, where the sinners are.

DR. FINCH: I shall be very brief, as it is already quite late. I have two wards, one male and one female, where the doors have been open for about one year.

In no instance has there been an escape from these wards. My impression at first was that unlocked doors would lead to a species of vagrancy or perhaps, more properly, to loafing, and interfere with regularity of habit and discipline, and I am yet inclined to think that without great care this condition of things might result.

Some of the connection doors have been unlocked also, allowing patients from one ward to mingle with those of an adjoining ward for a part of the day at least, and I think good has resulted. So I am convinced that the proper thing to do is to widen the area of freedom to the insane; the limit of the freedom should only be restricted by the bounds of safety.

Many are found unwilling to work, but a little effort in the way of persuasion or kindly talk will, I discover, induce them to forego their unwillingness in this direction. It is my experience that when they get started in employment they rather like it, and that very many prefer labor to ward confinement.

As to restraints, I can only say that nothing of the kind is employed in the Columbus Asylum for the Insane, except seclusion, and during the past two years but very little of that has been thought necessary. A number

of patients having paroxysmal mania, and that during their recurrence, were always secluded, have, by a special effort, been kept on the open ward, the good results that followed showing conclusively the wisdom and propriety of the change. It is very seldom that anyone is now confined.

We have a very large airing court, built of stone. It is unsightly, and gives a prison-like appearance to the building. It is never used, is not necessary to the management, and should be torn down, as I hope it soon will be.

Out-door exercise, occupation, the long walk in the country, amusements, the farm, the garden, the laundry, the sewing-room—all are drawn upon with constant diligence, to wean away the morbid introversion ever present in mental diseases.

DR. PUSEY: I hesitate to detain the Society at this late hour, even for a moment. I will only say I have made it an object to give the largest possible liberty to my patients; yet I have not classified them with a view to having open door wards. I have seven wards that might be called "open door wards," because every morning, after breakfast, and after the work of the wards is completed, the doors are open for the balance of the day.

My asylum is made up of a center building, two wings, and five detached buildings. The rear buildings are the detached ones, and open into yards that average about one acre to the building, making four or five acres of ground inclosed, and partitioned off by a high paling fence. The yards are covered with blue grass sod and pleasant shade trees. I have benches and seats of various sorts, which the patients can occupy should they prefer it to sitting and rolling on the grass. In good weather I require all who are not engaged in out-door work, or not otherwise employed during the day, to spend six hours in the open air. I always have one or more attendants in the yard.

Our front lawn is large and spacious enough. It is occupied during the day by a large number of patients, male and female. But there is no mingling of the sexes allowed. The men are on parole with the privileges of the grounds; the women are always attended. I expect some one of my attendants to know at all times, where every female patient is, and to know how she is employed. I have no unguarded windows. While I have a good per cent. of patients who could not be driven from the asylum, I have wire guards for all my windows, not only for safe keeping of my patients, but for protection against accidental falling.

On motion of Dr. Stearns the Association adjourned to 9 A. M., Thursday.

At 9 A. M., Thursday, the members of the Association proceeded to the Eastern Kentucky Lunatic Asylum. After inspecting the wards and grounds of the insti-

tution, the President called the meeting to order in the chapel.

Dr. Palmer, from the Committee on Nominations, made their report, naming Dr. H. A. Buttolph for President; Dr. Eugene Grissom for Vice-President, and Dr. John Curwen for Secretary and Treasurer.

In the absence of the President-elect the President surrendered the chair to the Vice-President, Dr. Grissom, who addressed the Association.

DR. GRISSOM: Mr. President and gentlemen of the Association—To be selected to preside over the deliberations of any national assembly is a compliment; but to be selected to preside over the oldest National Medical Association of this continent is a compliment to be appreciated and cherished. Old age, however, is not the highest attribute of this Association. It bears upon its banner the insignia of triumph in many a cause of science, charity and humanity.

Our gratification to-day, however, is not unmixed. For one I wish, as doubtless you do, that the distinguished veteran who is absent from necessity, might be present, and that he might preside instead of the unmeritorious recipient of your favor. The brilliant triumphs of this Association heretofore, whatever they may have been, cannot prevent us from congratulating ourselves and congratulating the specialty on what might not inappropriately be called a new departure with this meeting. The introduction of so many practical subjects, and the ability with which their discussion has been conducted, are a source of great gratification. The new blood that seems to have been infused into our body by the addition of the younger members and the assistant-physicians of several of the institutions, gives promise of long life and vitality.

But our pleasures are marred by the absence of so many of our distinguished *confreres*, some of whom will never again meet us this side of "that bourne from which no traveler returns." While yet in council, a voice of sorrow even beyond the Father of Waters, announces to us that the grim monster has claimed as a victim another one of our brethren.

Five noble spirits within the last year have left us forever; and although a large element of youth and strength and vigor has been introduced into the Association, even the youngest and strongest among us will soon follow in their melancholy wake. There is nothing certain in life but death. Each passing season has a lesson for us. The spring, with its beautiful flowers, its genial warmth and its rich verdure, bidding the husbandman to cast his seed and follow the plow the live-long day, until the setting sun hies him to his rest, is but a fit emblem of the health and strength and vigor of our younger companions on this occasion. The summer's harvest will soon be here, pouring its fruits into the lap of industry, bringing joy and gladness to the heart of the laborer and tuning his voice to songs of praise and thanksgiving. God grant that your own summer of life may be as rich, as full of promise and as well rewarded. After the summer is

over the heavy footsteps of the autumnal season and the voice of the dying year, as it moans through the leafless trees, teach the most solemn of all human lessons, *tu quoque moriture*.

Dr. Todd, of the Board of Commissioners of the Eastern Kentucky Lunatic Asylum, was introduced, and made the following address of welcome:

Mr. President, members of the Association, and ladies—I have been requested to say a word of welcome to you, on this occasion, in behalf of our citizens and our board, which I do most cheerfully. Most heartily do I welcome you, one and all, to this institution. Twelve months ago, a resolution was unanimously adopted by the Board of Commissioners of Eastern Kentucky Lunatic Asylum, embodying a request that you gentlemen hold your next annual meeting in Lexington.

That invitation, conveyed in courteous, perhaps formal phraseology, and presented at your meeting in Saratoga in fitting style by our worthy Superintendent, Dr. Chenault, carried with it a meaning that the Board of Commissioners of the institution desired an opportunity of declaring to you, personally, our high and grateful appreciation of your life-study and life-work—treatment and care of the insane—the noblest pursuit that can engage the mind of man.

I need not assure you that this appreciation is increased by demand for, and the result of your labors being brought more frequently and directly to us all, by a characteristic fast age and overstraining taxation, both of mind and body.

When our dear ones pass beyond the surgeon's skill and physician's art, we bow in sorrow to the inevitable; but when imperial reason totters on its throne, and they whom we love wander forth with the gates of reason closed behind them, and in deep despair, the cry is heard, "Who can minister to the mind diseased?" the reply comes from you, gentlemen of the Association, and through you, from thousands of homes throughout our land, made happy by having dear ones restored and returned to them, "clothed in their right mind."

They hear you say that the iron age of restraint and seclusion, of frowning bars and clanking chains, has passed away. They see you standing at the open door-way of stately homes and beautiful cottages, cheerful in architectural design and sanitary appointments, with amusements in music, games and library, and recreation in garden and field—all inviting to treatment and cure. They know your writings (and those of your noble predecessors) to be standard works in our libraries; your opinions to be authority in courts of justice at home and beyond the seas. No wonder we wish you here, and come out to meet you. We hail you as friends; we greet you as brothers; we welcome you as the common benefactors of all.

Be assured that the latch-string of our Kentucky doors will always hang out for you, and our Kentucky hearts ever beat a welcome march at your coming.

May your session be pleasant and profitable.

When you must depart, may you safely reach your homes.

Above all, we wish, gentlemen superintendents, that you and your children, for a thousand generations, may enjoy that greatest of all blessings which you strive to preserve in and restore to others, *human reason*, by which your barks may be safely guided along life's everchanging stream, until, at last, one and all, they shall be peacefully moored in the haven of eternal rest.

DR. GRISSOM: Dr. Todd, and gentlemen of the Board of Managers of the Eastern Kentucky Insane Asylum—The Association receives with great pleasure your cordial welcome so gracefully and beautifully tendered; and I but voice the sentiment of this Association when I say that the visit to this institution has been to them a source of great gratification. They find here an institution that has all the evidences of being well-managed—creditable to the board, creditable to its able superintendent, and creditable to the great Commonwealth of Kentucky.

Dr. Munson then read a paper on "The Hallucinations and Illusions of the Insane."

Dr. Blumer complimented Dr. Munson on his paper, and related, as an instance of hallucinations in the sane, a personal experience that he had nine years ago, in New Orleans. He had distinctly seen, while wide awake, six imaginary burglars enter his bed room and rob him and his sleeping companions. He was in poor health at the time, and offered the occurrence as suggestive of a state of mind that predisposed to hallucinatory disturbances.

DR. GRANGER: Briefly, I may recount a case of hallucination of hearing, but under the direction of Dr. Andrews. The man was a Bohemian, and had been in this country for many years, but had not conversed in his language for a number of years. He thought he heard a person speaking in his language in the adjoining room at a hotel. He went there and could not get in. He applied to the clerk, but no one was in the room. Gradually two Bohemian voices were to be distinguished, one in one ear and one in the other; and then apparently in one of the ears an English voice, making three distinct voices. At first they troubled him greatly. He had to give up his work. Gradually his intelligence taught him they were really unreal. But he was sent to Dr. Andrews a year or more after by a physician in Pennsylvania, who said, because he had hallucinations, that the man must be insane. A long and careful examination by Dr. Andrews convinced him that the man was not insane, and probably never had been insane. The man's health was fair; he had received no injury; he was not an epileptic. The case must have been of interest.

DR. PRATT: I would like to ask Dr. Munson if the hallucinations of smell that have come under his observation have been often associated with epilepsy?

DR. MUNSON: Never, so far at least as those statistics go. I do not remember of a single instance.

DR. PRATT: In private practice, I have encountered several cases of hallucination of smell, but they have, in every case, been associated with epilepsy and not insanity.

DR. FISHER: I was interested in the paper, and I merely rise to state that I have a case under my charge of hallucination of hearing and sight in the same individual, a lady of great intelligence and able to describe her condition fully, subject for some years to *petit mal*. I have written out her case recently, and read it to our local societies. The subject of unilateral hallucination is an interesting one, of which very little has been said and about which you find very little in the books. But I think those particular cases in which the emotions or symptoms are unilateral should be very carefully studied with reference to localization. I found in this case a practical benefit, from the fact that the hallucinations being on one side, I was able, after awhile, to convince the patient that they were unreal. She had come to believe some of the hallucinations, and was therefore insane on those delusions; but upon my convincing her that she did not see the vision with the right eye nor hear the voice with the left ear, and having satisfied her that they were hallucinations, she was able to overcome the delusions quite easily. I think this class of delusions deserves more study than we have given it.

DR. EVERTS: I simply wish to state, as one of the older members of the Association present, that I have listened to this paper with a great deal of pleasure, and I wish to express to Dr. Munson my sense of appreciation; recognizing, as I do, evidence of close observation, facility of expression, and the true "scientific instinct" manifested by his paper. I say this by way of encouragement to a young member of the Association.

DR. STONE: I would like, in a very brief way, to cite a case of hallucination without insanity. The subject is a distinguished minister of this State, who is known by several in this audience, and who could not be called insane. He was once riding through a lonely wood, when a United States soldier, dressed in full uniform and with a gun on his shoulder, stepped up and walked a distance by his side, and disappeared. At various times in his life he has been bothered with hallucinations, some of which depressed him very much. He was once sitting in the office of a friend, having eaten his dinner about two hours before. He has been a dyspeptic for the greater part of his life, and his state of stomach directly influences the occurrence of the hallucinations. While engaged in a quiet, pleasant way in conversation he distinctly saw his negro servant-boy, whom he had left at home, enter the room. Forgetting that he had dined he asked him if dinner was ready, and was informed by him that he had already eaten. Other inquiries and replies were passed, when the boy retired. The hallucination now ceased. Fearing that he had been deceived by his imagination, he inquired of his friend (now a lawyer of note) with whom he had been conversing, if he had seen the boy, and was surprised to learn that he had not, and was told, sympathetically, that he had exhibited a

little strangeness of action and manner. Returning home, he learned that the boy had not been absent. The hallucination here of both hearing and sight is interesting, and the Association is assured of the authenticity of the account.

Dr. Carriel, from the Committee on Time and Place of Next Meeting, made a report, which, after amendment, was adopted, as follows:

Place, Detroit; and time, the second Tuesday of June, 1887, at 10 A. M.

The Chairman appointed as a Committee of Arrangements, Drs. Hurd, Palmer, Long, Pratt and Curwen.

Dr. Fisher, from the Committee on Autopsies, made the following report:

I suppose, Mr. President, that I am called on in reference to the report of the Committee on the Recording of Autopsies. Dr. Clark was the President of the Committee, and I understood from him he was to send a report to be read, although he was unable to be present; but as he did not, I will state that I wrote Dr. Clark that my contribution to the work of the Committee would be in the shape of a form for recording autopsies. I have, therefore, tabulated a dozen or more autopsies, having them printed for distribution. Although it is at first sight simple enough to tabulate autopsies, it is not so easy as it seems. It is necessary to have autopsies taken in a uniform way, and then the diagnoses can be tabulated.

When I took charge of the Boston Lunatic Hospital, six years ago, I determined to have the best pathological assistance that could be obtained in Boston, and I secured Dr. Gannett, an instructor in pathology at Harvard, as our pathologist. I have printed all our autopsies in the annual report, each occupying about two pages. He gives "a diagnosis," or a summary of all the principal pathological conditions found throughout the body. That summary of gross and microscopic lesions I have presented in my tabulations; and in the next report I shall give sixty-five to seventy autopsies tabulated in this form. As the simplest way of showing members what has been done, I have had the cases put into tabulated form, printed copies of which I will distribute. I have nothing further to say upon this subject, but will answer any questions that may be asked.

DR. HILL: Has there been any formal action taken by the Committee?

DR. FISHER: I will state that there has not. I had this put into print just before leaving home, and sent Dr. Clark a copy. It is simply my individual contribution to the work of the Committee.

On motion of Dr. Hill, it was

Resolved That a Committee on Necrology be appointed, consisting of

the Secretary and a hospital superintendent from each State or Province, in which, during the year, the death of any medical man has occurred whose memory the Association may desire to preserve in its records.

The Committee appointed by the Chairman, under this resolution, consists of Drs. Curwen, of Pennsylvania; Stearns, of Connecticut; Rodes, of Missouri; Goldsmith, of Rhode Island; Mays, of California, and Wallace, of Canada.

On motion of Dr. Denton, it was

Resolved, That a Special Committee be appointed to prepare resolutions, to be reported at this meeting, on the recent death of Dr. Catlett, brought by telegraph to the notice of the Association while in session.

The Chairman appointed as this committee, Drs. Denton, Rodes and Carriel.

DR. BRYCE: Mr. Chairman—The remarks of Dr. Fisher, referring to the report of the Special Committee appointed at the meeting last year, to formulate and present forms for the Record of Autopsies, remind me to state here that I received a letter from Dr. Clark, the Chairman of that Committee, in which he stated that he expected to present a report at the present meeting. I am also a member of that Committee, and have good reason to know, from conversation and correspondence with Dr. Clark, that he had given the matter much thought, and, had he been present, would have made his report. We all know that he is deeply interested in the subject, and, by his forcible presentation of it last year, succeeded in convincing us of its importance. At any rate I deem the matter of sufficient importance to ask for a continuance of the committee, which consists of Dr. Clark, Dr. Andrews, Dr. Fisher, Dr. Schultz and myself. I therefore move that the committee be continued, with instructions to report at the next meeting of the Association.

The motion was seconded and adopted.

On motion, the Association adjourned, to meet in the chapel immediately after refreshments.

The meeting was called to order on the grounds, by the Chairman, Dr. Grissom.

Dr. McFarland addressed the Association on "Reminiscences of Former Members." These remarks, and all preceding ones, are omitted from the report at his request.

Dr. Denton, from the Committee on Resolutions in regard to Dr. Catlett, offered the following, which was adopted:

Whereas, It has pleased Almighty God to remove from our midst and from his earthly labors, our friend and co-laborer, therefore

Resolved, That, in the death of Dr. George C. Catlett, this Association has lost a true friend, and the State he served, a valuable officer and citizen; that we extend to his bereaved family and friends our sincere sympathy and condolence, and that a copy of this resolution be sent to his family by the Secretary.

A. N. DENTON,

W. R. RODES,

H. F. CARRIEL,

Committee.

Dr. Wilkins, from the Committee on Resolutions, offered the following report, which was unanimously adopted :

The Association of Medical Superintendents of American Institutions for the Insane, before concluding their fortieth annual session, wish to express in this formal manner their hearty appreciation of the cordial welcome, the many courtesies extended and the gratifying attention paid to them by Dr. R. C. Chenault and assistants, and the members of his family, both at Lexington and while visiting the institution over which our co-laborer in the specialty so ably presides; that we congratulate him upon the abundant means at his command, bestowed by a liberal Commonwealth—but view with misgiving and apprehension the fact of a lessened appropriation *per capita* for the care, comfort and cure of the insane under his charge.

2. That our thanks are heartily given to the President and members of the Board of Commissioners of the Eastern Lunatic Asylum of Kentucky, for the many attentions shown us as a body and individually, during this memorable meeting, and particularly for the gratification afforded by the novel, though sumptuous barbecue with which we were honored, on the grounds of the institution.

3. That we thank Col. W. La Rue Thomas and his fellow-citizens for the kind reception and elegant lunch, given in the Phoenix Hotel, on the first day of the sessions; and will long remember the excellent music furnished on that occasion and subsequently, by Trost's military band.

4. That to Major McDowell and family we are under deep and lasting obligations for the opportunity of visiting Ashland, the former home of one of the most revered of America's great and eloquent statesmen; for the numerous marks of hospitality shown while there, and for the valuable information so cheerfully, freely and patiently given by the Major in answer to the numerous inquiries made on the subject of horses, for which Kentucky is so justly famous.

5. That to Col. Treacy we owe our thanks for the exhibition given of many rare and valuable horses, at the stock farm of Messrs. Treacy & Wilson, and for the pains taken by Col. Treacy and his assistants to answer all interrogatories.

6. That to Judge J. R. Norton and his associates, we extend our regrets that we could not, in a more marked manner, accept his kind invitation to visit the Lexington Club Room, which was prevented only by the limited time at the disposal of the members.

7. That we thank Messrs. Davidson & Seilbach, the proprietors of the Phoenix Hotel, for their courtesy in gratuitously furnishing the Ladies' Parlor for the meetings of the Association.

8. That we also tender our acknowledgments to the Press of Lexington, for their reports of the proceedings and kindly notices of the Association.

After a few remarks by Dr. Grissom, the Association, on motion of Dr. Callender, adjourned, to meet at Detroit, Michigan, on the second Tuesday in June, 1887.

JOHN CURWEN, Secretary.

SELECTIONS.

PSYCHIATRY.

THE MENTAL ALIENATION OF BLUE-BEARD.—Under this heading the *St. Louis Medical and Surgical Journal* for August, contains the following: Antiquarians have settled among themselves with singular unanimity that the original of Blue-Beard, the terrible and blood-thirsty old bogey that shared the honors in our nursery days with Jack-the-Giant-killer, was a certain Chevalier de Retz or Rays, who lived in the early part of the fifteenth century. A singular bit of history in relation to this monster, recently published in France, is of interest to physicians, inasmuch as it furnishes a veritable clinical observation in the study of a peculiar form of mental alienation—*folie impulsive*. It is a letter written by de Retz, after his condemnation, to king Charles VII., of France, and now published for the first time that we are aware of, in English. De Retz, or to give his full name, Gilles de Laval, Chevalier de Retz, was a most noble and powerful knight, a marshal of France, a companion and fellow-soldier of Joan of Arc. After the tragic death of La Pucelle he retired to his castle of Machecoul, in Brittany, and there gave himself up to the excesses and cruelties that have made his name infamous for all time. He did not, however, as told in the nursery story, marry inquisitive maidens and murder them for gratifying their curiosity, but he did far worse, as will be seen by the letter produced below. We find the original text in a work by Julian Chevalier, on the *Inversion of Sexual Instinct, medico-legally considered*—a work already noticed in the *Journal* (February, '86, p. 87). After having murdered over eight hundred children in the gratification of his horrible passion, De Rays was finally brought before the Court of Brittany, tried, found guilty, and condemned to be burned at the stake. He appealed to the king for a commutation of sentence, in a letter, of which the following is a partial translation. After the usual formalities, he says: "I do not know how, but of my own self, without counsel of anyone, I concluded to act thus (as detailed in the *acte d'accusation* and trial) solely for the

pleasure and luxury it afforded me. In fact I found incomparable delight in murder, doubtless by the instigation of the devil. It is eight years now since this diabolical idea came to me. One day being by chance in the library of the castle, I found a Latin book describing the lives and customs of the Cæsars of Rome. It was written by a learned historian by the name of Suetonius. The said book was adorned with pictures very well painted, which showed how these pagan emperors lived; and I read in this beautiful history how Tiberius, Caracalla and other Cæsars, slaughtered children and took pleasure in torturing them (*et prenaient plaisir a les martyriser*). Upon this I determined to imitate the said Cæsars, and on that very evening I commenced to follow up in earnest and carry out the text and the pictures of the book."

He goes on and recites how two of his retainers, Henriët and Pontou by name, were instructed as to his desires, and became the purveyors of victims for his horrid orgies. He continues: "I abused these children for the ardor and delectation of luxury which their sufferings caused me. Afterwards I caused them to be slain by these fellows. Sometimes I made them cut the throats of the children, severing the heads from the bodies. Sometimes I crushed their skulls by blows of a heavy stick. Sometimes I removed their limbs; removed their entrails, hung them on iron hooks to cause them to languish, and while they were languishing to death, I had connection with them. Sometimes I did the same after they were dead. Oh, I had great pleasure in seeing the most beautiful heads of these children after they were bloodied."

Further on he says: "as to those slain, their bodies were burned in my chamber, except some very beautiful heads which I kept for relics. I do not know how many were thus killed, except that the number was more than one hundred and twenty each year." Finally he appeals to the king thus: "I have often lamented that I left your service, most venerated Sire, when I did so, some six years ago; because if I had not done so I would not have come to this; but I must confess that I was led to retire to my estate by a certain furious passion and desire which I felt toward your son, the Dauphin of France, such that I would not have failed to have slain him some day, as I have since slain so many innocent children, by the secret temptation of the devil. I con-

jure you, Sire, not to abandon me, your humble servant, your chamberlain, your marshal of France. Spare me, and let me expiate my crimes by retiring to a monastery, after the manner of the Carmelites."

The prayer was not granted. Condemned to death by the Court, he was burned at the stake, along with his accomplices and tools, in the town of Nantes, in 1440. The ruins of his castle of Machecoul are still to be seen. As remarked by Chevalier, we have here an example of homicidal mania accompanied by perversion of sexual instinct exactly the counterpart of cases frequently seen now-a-days. Fortunately, however, they do not have the opportunity of gratifying their mania to the same extent as did the horrible monster whose story is thus related. Those were days of demonomania, of sorcery, of beliefs in incubi and succubi, and an almost universal priapism. Crimes against nature could not fail to be the most common events, and the result was the monstrous phenomenon "Blue-Beard."

HUGHLINGS JACKSON'S VIEW OF THE NATURE OF INSANITY.—Disease is said to cause the symptoms of insanity. I submit that disease only produces negative mental symptoms answering to the dissolution, and that all elaborate positive mental symptoms (illusions, hallucinations, delusions and extravagant conduct) are the outcome of activity of nervous elements untouched by any pathological process—that they arise during activity on the lower level of evolution remaining. The principle may be illustrated in another way without undue recapitulation. Starting this time with health, the assertion is that each person's normal thought and conduct are, or signify, survivals of the fittest states of what we may call the topmost layer of his highest centers, the normal highest level of evolution. Now, suppose that from disease the normal highest level of evolution (the topmost layer) is rendered functionless. This is the dissolution, to which answer the negative symptoms of the patient's insanity. I contend that his positive mental symptoms are still the survival of his fittest states—are survivals on the lower, but then highest, level of evolution. The most absurd mentation and most extravagant actions in insane people are the survival of their fittest states. I say "fittest," not "best;" in this connection the evolutionist has nothing to do with good or bad. We need not wonder that

an insane man believes in what we call his illusions; they are his perceptions. His illusions, etc., are not caused by disease, but are the outcome of activity of what is left of him (of what disease has spared), of all there then is of him; his illusions, etc., are his mind.—*Popular Science Monthly*, June, 1884.

COCAINOMANIA.—Erlenmeyer, in *Deutsche Medizinal Zeitung* (1886, No. 46), has studied the symptoms in a number of individuals who have used cocaine to excess by subcutaneous injection or otherwise. The characteristic symptoms denote vasomotor paralysis, the pulse is accelerated, the sweats profuse, and dyspnea and syncope ensue. Failure of general nutrition is very notable, the eyes become sunken, and the skin of cadaveric hue. At a more advanced stage psychic troubles supervene, sometimes requiring personal restraint. Most of the persons so affected had previously been addicted to the abuse of morphia, and cocaine had been resorted to as a minor evil. It would therefore be unjust to lay too large a share of the troubles noted at the door of cocaine; still, enough evidence is at hand to prove that it may be productive of evil consequences, and should only be used as a powerful medicament, with circumspection.—*Medical and Surgical Reporter*.

NEUROPHYSIOLOGY.

NOTE ON AN ALTERATION OF THE BRAIN, CHARACTERIZED BY SEPARATION OF THE GRAY AND WHITE MATTER OF THE CONVOLUTIONS. By Dr. J. Baillarger.—Some thirty years ago Dr. Baillarger published three cases in which this unusual condition was found. In describing the lesion in the first case, he wrote: At the anterior and superior part the membranes raise in a single piece quite a group of convolutions which separated clean from the white matter. On examining this portion on its inner surface, I had genuine convolutions, whose summits were formed by the bottoms of the sulci. These inverted convolutions were smooth, and of a bluish-white color at their summits.

In the second case, the lesion, limited to the posterior lobe, presented the same features. On raising the membranes, one brought away with them the entire cortical layer, leaving the white substance quite bare, firm, smooth;

of a bluish-white color, and exposing the fibrous prolongations and the sulci. In this manner the whole posterior lobe was decorticated. The cortex, which remained adherent to the membrane, was extremely thin; yet it preserved the shape of the convolutions, and appeared, like them, inverted. One could reapply them to the white substance.

In the third, the lesion is described as limited to one of the posterior lobes. The entire cortical layer came away in a single piece, leaving the white substance naked and very firm.

In a fourth, the change was yet in the first stage. Between the gray and white matter there was a very distinct line, much more marked than in the normal condition. Removing the membranes did not produce decortication. The commencing lesion was only observed in this case by direct examination, and after section of the convolutions. To make the separation between the two substances very marked, it is only necessary to put a portion in water.

It should be added that in the other cases the change was not everywhere by any means so well marked. When the separation is complete, and the cortical layer is much atrophied, there is a distinct cavity between it and the white matter; and if a portion is placed in water, the cortex is raised. On the other hand, the convolution may appear quite healthy, with simply a very well marked line of separation between the two substances.

This lesion, when it is in the first stage, may easily be overlooked; still, it appears to be rare. It has, however, been described somewhat vaguely by Calmeil.

It must not be confounded with the adhesions so frequently seen in general paralysis:

1st. Instead of raising only a layer of the gray matter, more or less thick, the membranes lift this layer in its entire thickness.

2nd. Instead of a kind of ulcerated surface, unequal and mammilated at the bottom, after raising the membranes one sees the white substance firm and smooth.

3rd. Lastly, and this is the most important point, complete decortication occurs at the bottom of the sulci, where there are no adhesions, as at the tips of the convolutions.

This can only be explained by the complete separation of the two substances which are merely lying together. So the adhesion on the tip of the convolution is sufficient

to drag away the entire convolution. Besides, even before raising the membranes, one can feel that the cerebral cortex is detached from the subjacent substance; it really slides upon it, proving its complete separation. Calmeil has pointed out this very distinctly: the cortical substance of the posterior lobes presented this peculiarity, that it was no longer adherent to the framework of the white substance which served to support it.

In the majority of the cases the gray matter was soft or very soft; the white matter firm, very firm, or even much hardened. Both were atrophied. The minute pathological changes are not understood.

All the patients in whom this lesion was found were general paralytics; in three, paralysis was most marked on the side opposite the lesion; in the fourth this was not so, as the posterior lobes were the seat of the disease.—[J. W. McDowell's "French Retrospect," *Journal Mental Science* for April.]

HITZIG ON THE MOTOR CENTERS.—Professor Hitzig, who had been kept for six years by other duties from treating of the vexed question of the motor area of the brain, at a meeting of neurologists and alienists, held at Baden, on the 17th of June, 1883 (see "Archiv.," Band xv., Heft 1), commented on the manner in which his researches had been interpreted and extended. He had been induced to renew his experiments by the statement of Munk, who had found that the application of the interrupted current to the convolutions of the frontal lobe produced convulsions, and that their extirpation was followed by paralysis. Munk found that the removal of one frontal lobe rendered the animal unable to bend the back sideways, and that removal of both lobes made it incapable of arching the back upwards. He therefore concluded that the function of the frontal lobes was the innervation of the muscles of the back. That the great development of the frontal lobe in man should have no further function than presiding over the movements of the back seemed to Hitzig very improbable.

Hitzig found that the symptoms described by Munk were only occasionally observed. In many of his experiments he found that large portions of the frontal lobe could be removed without these deficiencies in the movements of the back being present. Whilst he found that there was much less disturbance of outward functions after

injury to the frontal lobes, Dr. Hitzig was able to make out that there was a loss of sight in the opposite eye, a disturbance in the motions of the limbs, and a loss of intelligence.

In order correctly to estimate the injury to the intelligence of the animal, one requires to know something of its habits and intelligence before it is made the subject of experiment. Dr. Hitzig confirms the statement of Goltz that removal of any part of the brain causes disturbance of vision which passes away in a few days, otherwise, he observes, he will not range himself in the camp of Goltz. Instead, however, of combating this formidable opponent he here turns aside to criticise the theory of Schiff, that the movements produced by the application of electricity to the brain are nothing else than reflex motions caused by irritation applied to the termination in the brain of the sensory nerves.

Hitzig concludes by observing that from the centers in the cortex proceed motor, sensory, and, perhaps, other fibers, and that it is the motor fibers which are affected by the electric stimulus. "I still hold," says he, "as I did in the year 1870, that the centers discovered by me are nothing else than gathering places; and I apply this theory to the other centers since discovered. I share the often-repeated view that deep or extensive lesions to the central machinery of the brain necessarily disrupt a number of connections between the parts, and must thus produce such symptoms. In this category would I place the temporary disturbance of vision after injuries to different parts of the brain." Hitzig opposes the theory of Munk that no especial organ is needed for the higher intellectual capacities. "It is true," he observes, "that the intelligence exists in all parts of the cortex, or rather in all parts of the brain, but I hold that abstract thought needs a separate organ, and seek for it in the frontal lobe."—[W. W. Ireland's "German Retrospect," in the *Jour. Med. Science.*]

EXNER AND VARETH ON MOTOR AREAS IN THE CORTEX.
—At the Congress of Scientific Men and Physicians, held at Strasburg, in September, 1885 ("Neurologisches Centralblatt," No. 20, 1885), Dr. Exner and Dr. Vareth gave an account of a number of experiments made by them in the Physiological Institute of Vienna. Their object was to determine more nearly the areas of the

cortex which preside over different muscular motions. They experimented on dogs under the influence of morphia, using the constant current. The muscular contractions were registered upon Marey's drum. In order to determine the so-called motor centers, they severed the side connections so as to leave the portion of gray matter isolated, save by its downward connection with the centrum ovale. If a part, after this lateral division, still retained its influence on particular muscles until its continuity below was severed, it was assumed that this was a presumable determination of a motor center.

On mapping the results thus obtained upon a diagram, these observers arrived at the conclusion that the so-called motor centers are not separable from one another, and are not reducible to given points. The posterior and outer part of the sigmoid gyrus is the common area of the muscles of the extremities, the flexor, and the extensor digitorum, and the abductor pollicis of the fore paw and of the flexor and extensor digitorum of the hind paw.

The cortical areas of these single muscles for the most part seem to overlap one another, or to be crowded against one another; the outer part of the sigmoid gyrus constitutes the area of the orbicularis palpebrarum; the area of the facial is sharply divided from that of the extremities. In the discussion which followed, Goltz repeated his well-known views. He observed that we cannot dismiss the possibility that the electrical excitation of the muscles through the cortex may be dependent upon irritation of the white substance.

At a further meeting of the Congress, at Strasburg ("Neurologisches Centralblatt," No. 21, 1885), Goltz presented four brains taken from dogs which had been shown alive in the morning. He laid most stress upon one brain in which the occipital lobe had been completely removed, so that no remaining motor center could be pointed out, and in which the so-called excitable zone of the cortex was, in a great measure, destroyed. The visual area on the left side was reduced to a very small margin. Yet this dog, as they had seen, had retained sensations of pain or pressure of the right fore and hind paws, as well as what Hitzig calls motor consciousness.—[W. W. Ireland's "German Retrospect," in the *Jour. Med. Science.*]

THE CAUSE OF THE KNEE PHENOMENON.—Dr. Theodore Rosenheim ("Archiv," xv. Band, 1 Heft) gives a description of his experiments to determine the nature of the clonus or tendon phenomenon. Since the discovery of this symptom by Erb and Westphal it has been a debated question whether the involuntary motion is owing to reflex action in the cord or direct stimulus acting on the muscles. Eulenburg declared that the latent time between the shock and the reaction was in the patellar clonus too short for the stimulus to be conducted along the excito-sensory nerves to the cord and then back along the excito-motor nerves. He therefore inferred that it could not be reflex, and thought it dependent upon the muscular tonicity of the quadriceps extensor and the quickness of the peripheral sensibility and conduction of impressions. Rosenheim has arrived at the conclusion that the time of the latent stimulus of the knee phenomenon is never so short as to make it impossible for it to be reflex. He never found this period to be less than 0.025, but Eulenburg gave the shortest period observed by him as 0.01613. Gowers gave the latent period of the knee clonus as from 0.09 to 0.15, that of the ankle clonus as 0.025—0.04. While he held the patellar reaction to be reflex, he thought the ankle clonus to be the result of the direct muscular stimulus. Westphal has observed that a tap on the border of a tendon or muscle was the only stimulus which could call forth the knee phenomenon. By some carefully-devised experiments Dr. Rosenheim succeeded in producing an analogous motion by shocks transmitted from a magneto-electric rotation apparatus through a needle inserted in the tendon. The general results of Dr. Rosenheim's experiments seem to confirm the view that the patellar clonus is reflex.—[W. W. Ireland's "German Retrospect," in the *Jour. Med. Science.*]

GIRARD ON THE THERMOGENIC CENTERS.—At the recent session of the Helvetian Society of Natural Sciences, at Geneva, Professor Girard gave an interesting account of some late experiments of his in Schiff's laboratory, to ascertain the location of the heat center. These experiments, which were made on hares, have led him to conclude that the cerebral center of thermogenesis is the corpus striatum. Every lesion affecting this body in its median part produces a pronounced hyperthermia, which does not result from spasm of the vaso-constrictor nerves

of the skin, but from an augmentation of caloric production. Electric excitation of this region, which is followed by a marked augmentation of heat, justifies the assertion that the hyperthermia is a phenomenon of excitation and not of paralysis. Moreover, after puncture and irritation of this region of the cerebrum, there was a considerable increase in the quantity of nitrogen excreted in the urine, indicating an acceleration of the organic combustions; this was accompanied by notable emaciation of the animal. Girard considers the thermogenetic centers as including not only this median portion of the striate body on both sides, but all the subjacent parts to the base of the brain. There is here, according to him, an apparatus whose excitation increases the production of animal heat, and which probably concurs under physiological conditions to regulate heat productions. In answer to the question, "Is the artificial hyperthermia thus obtained identical with fever?" he answers, "No." Augmented heat production and diminished heat emission, such, in his view, are the two necessary factors of that pathological calefaction, which constitutes fever. But the last of these factors was wanting in his experiment. — *Boston Medical and Surgical Journal*.

GUDDEN ON CEREBRAL LOCALIZATION.—At a meeting of the German Medico-Psychological Society, at Baden, in September, 1885 (reported in the "Neurologisches Centralblatt," No. 19, 1885), Gudden referred to the great difference of opinion about the results of experiments on the gray matter of the brain. He had little faith in the charts in which different centers were put down as in a map. On the whole, he stood on the stand-point of Goltz. His own observations had led him to doubt Munk's results about the visual centers. He had extirpated the whole occipital lobe in young rabbits, and found that they could still see very well. He thought our methods of investigation too rude to give trustworthy results. The method of investigation to which he trusted most was destroying the conducting tracts, and observing what portions of the cortex became atrophied. If one extirpated the frontal lobe, there was degeneration of the tract which passed down through the pyramids, but if the rest of the brain were extirpated, leaving the frontal lobes entire, there was no degeneration of the pyramids. If the hemispheres were removed, the fillet became degenerated. If one ex-

tirpated the parietal and occipital lobes, the corpus geniculatum internum became atrophied as well as the corpus mamillare. Gudden removed the so-called motor sphere in cats, and after a few hours they showed no motor disturbance. He considered the arrangement of the different layers to be the same all over the cortex. The only center which Gudden seems disposed to admit is that for language.—[W. W. Ireland's "German Restrospect," in the *Jour. Med. Science.*]

THERMAL BRAIN CENTERS.—Dr. R. W. Raudnitz ("Prager Medicinische Wochenschrift," 1885, No. 18) does not consider the existence of a center for the regulation of animal heat in the cortex cerebri, as indicated by Eulenburg and Landois, to be sufficiently proved. In experiments upon dogs these physiologists observed a rise of temperature in one paw after extirpation of the gray matter of the brain, and when this supposed cerebral center was stimulated there was a sinking of the temperature in the same paw. This change of temperature, however, Dr. Raudnitz observes, was not invariable, and might be simply owing to the diminished muscular tonicity and its influence upon the vessels. When the animal is under the influence of curare the alteration in the temperature of the paw cannot be induced. As stimulation of the same region of the cortex induces muscular motions in the limbs, this may be the cause of the alteration of temperature. Eulenburg and Landois have stated that they succeeded in producing changes of temperature in the limbs in animals while under the influence of curare. On repeating these experiments, Dr. Raudnitz has not been able to confirm their results. He is therefore disposed to believe that these physiologists have not sufficiently attended to the many different sources of fallacy.—[W. W. Ireland's "German Retrospect," in the *Jour. Med. Science.*]

ON THE CENTRAL CONNECTION OF THE AUDITORY NERVE.—Benno Baginsky has studied the origin and central course of the auditory portion of the eighth nerve in the rabbit, by observing the degenerations following destruction of the cochlea in young animals. He contrived an operation by which the cochlea was completely destroyed, while the other parts of the labyrinth remained intact, and found that the resulting degenerative changes

affected solely the hinder root of the auditory nerve, the anterior root being unaltered. The fibers of the posterior root are thus shown to have no connection with the inner and outer auditory nuclei, but to spring in part from the anterior or accessory auditory nucleus and the tuberculum laterale of Stieda, and in part to course round the restiform body into the arcuate fibers of the medulla oblongata. Other fibers appear to pass through the corpus trapezoides to the superior olive of the same side. Having crossed the mesial plane the auditory fibers are found in the lower fillet of the opposite side, running to the inferior quadrigeminal and internal geniculate bodies, which are believed to be related to the auditory nerve in the same way as the superior quadrigeminal and external geniculate bodies are to the optic nerve. No changes were found above the mesencephalon in the cerebrum, or in the cerebellum and its inferior peduncle.—*Virchow's Archiv.*, July, 1886.

THE ANO-VESICAL CENTERS.—Dr. Kirchoff publishes ("Archiv.," xv. Band, 3 Heft) the symptoms in a patient who was thrown from his horse and severely injured in the loins. The accident was followed by paraplegia, but in six months was again able to walk about. There remained incontinence of urine and fæces, with recurring attacks of cystitis, which in the end extended to the kidneys, causing death exactly twenty months after the accident. On examination the cord was found to be compressed by the displacement of the first lumbar vertebra. Dr. Kirchoff considers that this case supports the view that the ano-vesical center is situated near the point of origin of the third and fourth sacral nerves, as indicated by Stilling.—[W. W. Ireland's "German Retrospect," in the *Jour. Med. Science.*]

NEUROPATHOLOGY.

A NEW GROUP OF SYMPTOMS.—Dr. Westphal has, in a reprint from the "Archiv." (Band xvi., Heft 2), called attention to a group of symptoms in connection with a pathological lesion such as has not previously been described. The patient was 47 years of age on admission to the hospital at Berlin, where he remained two years and three months. He was free from taint of neurotic

inheritance, of syphilis, or from alcoholic excess. The disease began with paresis of the left rectus internus of the eye; later came ptosis and giddiness. The legs began to fail, till at last they became almost completely paralysed. Then followed loss of strength in the arms. The paralysis was followed by rigidity in groups of the muscles of the legs, increase of the knee phenomenon, and later on by paradoxical contraction. The last symptom was observed first in dorsal contraction of the foot, then in plantar flexion and in the movements of the knee and hip joints by stiffness. Paradoxical contractions in the arms followed later. Similar disorders of innervation in the muscles of the jaw and tongue, loss of sensibility, spread almost over the whole body, at last implicating the region of the fifth pair. Besides the feeling of giddiness and distress and broken sleep there were no cerebral symptoms till towards the end of the illness, when some blunting of the intelligence seemed to result; but this was no greater than what is observed to follow other severe diseases. The patient was at the same time affected with tuberculosis. The diagnosis of the nervous disease seemed uncertain, but the symptoms were supposed to indicate multiple cerebro-spinal sclerosis. The result of the *post-mortem* examination was quite unexpected.

There was found disease of the posterior pillars of the cord, affecting especially the inner part of the columns of Goll up to the margin of the pillars of Burdach. The peripheral nerves of the affected limbs were much atrophied and the muscular tissue degenerated. Dr. Westphal explains the persistence of the patellar reflex by the entirety of the root-zone in the dorsal region and the want of ataxia by the incompleteness of the degeneration of the posterior columns.

He regards it as a case of chronic parenchymatous neuritis. He is unable to decide whether the disease had a peripheral or spinal origin.

Dr. Westphal's paper, which fills thirty-eight pages, is illustrated by two pages of lithographs.—[W. W. Ireland's "German Retrospect," in the *Jour. Med. Science*.

RELATION OF THE TENDON PHENOMENON TO THE REACTION OF DEGENERATION.—Dr. Ernst Remak ("Archiv.," xvi. Band, 1 Heft) examines the connection of the symptoms of the tendon phenomenon with diminished irritability to the continued and induced currents following on

degeneration of the affected muscles. He observes that a slight stretching of the crural nerve in animals causes failure of the tendon reflex of the knee. He notes the failure of the knee phenomenon in cases of partial and peripheral paralyses dependent upon neuritis, and also its failure in complete motor paralysis of the mixed nerves. In case of recovery the altered reaction to the faradic and galvanic currents to the normal state than the patellar reaction. Dr. Remak comes to the following conclusions:

1. The increase of the tendon phenomenon, especially in the foot, accompanied by partial degenerative reaction of the corresponding muscles, can occur only in spinal disease, and only in amyotrophic lateral sclerosis.

2. The maintenance of the tendon phenomenon, in spite of partial degenerative reaction, occurs, in all probability, only in the atrophic spinal paralysis (*polio-myelitis anterior*).

- a. The loss of the tendon phenomenon generally follows upon all severe paralysis with relaxation of the muscles and degeneration of the muscular tissues and diminished irritability of the nerve, whether of spinal (polio-myelitic) or of peripheral origin (neuritic), and it lasts longer in cases of recovery than the galvano-muscular reaction of degeneration.

- b. The tendon phenomenon fails in peripheral neuritis of mixed nerves.

- c. The tendon phenomenon also fails in complete peripheral paralysis, even where there is no consecutive reaction of degeneration.—W. W. Ireland's "German Retrospect," in the *Jour. Med. Science*.

NEUROTHERAPY.

URETHAN IN MENTAL AND NERVOUS DISEASES.—Drs. Otto and Koenig (*Centralblatt für Nerven Heilkunde*) have studied the action of urethan in a large number of insane patients of different sorts. In some forms of paralysis, four to eight grammes were given, but in a condition of strong excitement, the action was doubtful. They found it useful in doses of from two to four grammes for epileptic patients where there was a condition of no great depression; larger doses were not found advisable on account of the unpleasant effects on the

stomach. Urethan did good service in excited conditions of idiotic children; in the paralysis of men, with slight excitement, small doses, from three to four grammes, were found to be useful; in severer cases, it was very untrustworthy, even in doses of ten to twelve grammes. Kraepelin has given urethan as a hypnotic, especially in mental diseases, and only in doses of one to three grammes (fifteen to forty-five grains). He never observed any unpleasant effects. Sleep occurred ten to fifteen minutes after swallowing the drug, and continued for several hours. He did not use it in cases of strong excitement. Kraepelin found that, in sixty per cent. of paralytic cases, urethan acted favorably. It was also serviceable in melancholia, and in cases of great mental anxiety. As much as seventy-seven per cent. of these cases were benefited by it. Rothenbiller found that urethan, in doses of two to four grammes, gave several hours' sleep to patients with slight excitement. He also used subcutaneous injections of a quarter of a gramme (nearly four grains). One to three injections insured six to eight hours' sleep.

HYOCYAMINE IN CHOREA.—Hyocycamine has been used by Dr. Dana in a large number of cases of chorea, and in the great majority of cases it caused decided improvement, prescribed as follows: *R* Merck's cryst. hyocycamine, gr. i.; Aquæ destillat, $\frac{3}{4}$ i. M. *Sig.*—Mi. viii. t. i. d., increased to Mi. xv. or xx. Children can generally take twelve or fifteen drops, about $\frac{1}{30}$ grain, three times a day. In one case, a boy of twelve took nearly thirty drops, or $\frac{1}{16}$ grain, three times daily.

HELENIN IN CHOREA.—On account of its alleged antispasmodic properties, Dr. Dana has used helenin in three cases of chorea. The patients all reported themselves improved under its use, but the drug was too expensive to be extensively tried. It was given in alcoholic solution, one-third grain, three to four times daily. It now costs about fifty cents a gramme.

SEMIOLOGY.

REFLEX EPILEPSY CAUSED BY LARVÆ OF INSECTS.—A tanner, forty years old, was taken suddenly ill on June 14th, with anorexia, griping and mental oppression, and toward evening had a veritable epileptic seizure. A saline

purgative administered to the patient caused the passage of several thousand larvæ, which Leuckart recognized as being those of the *musca vomitoria* and *anthomya canicularis*. Upon this discharge the attack was cut short. The case is an interesting one, says the *Deutsche Medizinische Wochenschrift*, from a double point of view, since it not only places beyond a doubt the possibility of symptomatic epilepsy due to entozoa, which was hitherto disputed, but it also demonstrates the danger of the ingestion of cold meats, left where they can be reached by the flies in question. The ova are deposited on the meat, and, unlike the latter, are not affected by the destructive action of the gastric juices.—*St. Louis Med. and Surg. Jour.*

MENTAL DISTURBANCES CONSECUTIVE TO CATARACT OPERATIONS.—Landsberg has recently reported three cases of grave cerebral disturbances following cataract operations. These disturbances consisted of hallucinations, followed by violent delirium. As long ago as 1869, Sichel called attention (in the *Union Médicale*) to this phenomenon, which has since then been observed by many others. Schnabel had twelve such cases in a total of one hundred and eighty-six cataract operations. Senility seems to be the predisposing cause, as out of the whole number in which cerebral symptoms appeared, not one, thus far, has been less than sixty-six years old, the ages running from that up to eighty years.—*St. Louis Med. and Surg. Jour.*

EDITORIAL.

[*The Editor is Responsible for all Unsigned Editorial Matter.*]

The Great Increase of Insanity.—We are accustomed to hear much of the great increase of insanity within recent times, and if what we are told is true, the time is not far distant when those outside of asylums will be in the minority.

There is, however, some justification for the exaggerated ideas regarding the increase of insanity. Within this century there has undoubtedly been a great multiplication of insane asylums and a great accumulation of insane. It is found, however, that this seeming great increase of insanity is largely apparent only, and is due to an accumulation of insane, from a diminished death rate, and other causes.

Until within a comparatively recent time insanity was regarded as a stigma upon the individual afflicted and a reproach to the family in which it occurred, and as it was not regarded as a disease, there was no confidence in benefit to be derived from medical treatment. The logic of this was that the insane were hidden away in cellars or garrets, and left to die of neglect, or if they were taken to a "Mad House," the neglect and cruelties practiced upon them tended to shorten their life rather than to restore them to reason. It is not necessary to refer here in detail to the unhappy condition of the insane in the last century, for our readers are doubtless sufficiently acquainted with that horrid and repulsive story which will forever remain one of the darkest pages in man's social history.

Forty years ago or upwards, the average life of the insane was about eleven years; now it is eighteen years, and it will probably be lengthened within the near future. This lengthening of the life of the insane has led to their rapid accumulation in institutions. In addition to this the notion that insanity is a disease amenable to treatment, the greater confidence of the public in the management of asylums, and the recognition of new forms of insanity—all these influences have operated to swell the number of insane treated in institutions.

The immediate suggestion of these reflections is an article by Dr. Hack Tuke, on the increase of insanity. His conclusions are based upon the statistics of the asylums of England and Wales from 1859, to 1885, inclusive, a period of 26 years. He holds that the only correct test of the increase of insanity is to ascertain the number of occurring cases of mental disease in proportion to the population during the periods of time we desire to compare.

We find in these statistics an illustration of the influence of the death rate in institutions in affecting the accumulation of insane. From 1874 to 1879 the death rate in the asylums of England and Wales was 10.26 per cent., while from 1880 to 1885, inclusive, the death rate was 9.3 per cent. The actual number of deaths in the latter period was 29,783. Had the mortality of the previous six years been maintained the number of deaths during the latter period would have been 3,405 more than actually occurred. Therefore by good care the death rate was diminished, and England and Wales had 3,054 more insane to care for than they would otherwise have had. Going back to an earlier date we find a further illustration of this point. In 151 asylums in England and Wales from 1766 to 1844, a period of 78 years, the death rate was 12.12 per cent. If the same death rate had been maintained from 1859 to 1885 the number of deaths would have been 128,796. Instead of this the number of deaths was 105,813, making a difference of 22,983 in 27 years. Therefore, owing simply to a diminished death rate, England and Wales had to provide for over 20,000 insane patients who otherwise would have gone where maniacs cease from troubling and melancholics are at rest.

Since 1878 the number of first attacks of insanity occurring in England and Wales have been kept with great accuracy. The absolute number of first attacks in England and Wales in 1878 was 8,354; in 1885 it was 8,527; in 1880 it was 8,294, being less than in 1878, and in 1884 it was 9,054. Allowing now for increase of population, we find that in 1878 the number of first attacks per 10,000 living was 3.337; in 1879 it was 3.345; in 1880 it was 3.225; in 1881 it was 3.252, but still it did not reach the number for 1878. In 1882 it was almost identical with 1878—3.257; in 1883 it was 3.435; that is, only one-tenth of a patient in every 10,000 of the population;

whereas, in 1884, it fell to what it was in 1878; and in 1885 it fell below this, namely, to 3.101. These statistics, show that in England and Wales there has been no increase in insanity since January 1st, 1878.

There is a further consideration suggested by this subject. It is probable the amount of occurring insanity may vary in different periods as it does in different years, so that one decennial would show an increase and another a diminution. There is doubtless a variation also in the different forms of insanity occurring in different periods. General paresis has certainly increased during this century, and for the reason that its causes operate with greater potency in our modern civilization. It is not improbable that the amount of other forms of insanity, or some of them, has diminished.

Insanity is undoubtedly the greatest affliction that can befall a human being, and yet when we consider the grade of society from which the large majority of the insane population is recruited, insanity is not so serious a matter for the race as it at first might appear to be. Statistics show that a large majority of the insane are of the poor and uneducated classes, those too who struggle with that form of poverty that does not stimulate to endeavor, but oppresses the courage of weak natures who find life made up of petty cares, adversities and wearing anxieties, and with little of hope or cheerfulness. It is natural that those who are thus mentally undeveloped, who constantly contend with the most unfavorable conditions of civilization, and who are without that hopeful confidence that intelligence gives, would be just those who would become an easy prey to insanity.

It is true there are among the insane those who are educated, and even talented; but they are the exception, and when we study their life-history we usually find that there were original defects and twists of organization that furnished a ready soil for mental degeneracy.

We find therefore, that nature in afflicting with insanity those who are weak and ignorant, tends here, as everywhere, to rid the world of imperfect members of the human race; for being unequal to the adverse condition of existence, they perish, just as in the storms that blow, the weak trees must fall, though occasionally strong ones will be carried down.

J. H. M.

"Index Catalogue of the Surgeon-General's Office of the United States Army."—The seventh volume of this work is received. This is the most complete book of its kind in existence, and invaluable.

The Doctor of the Future.—The *New York Medical Times* in an editorial of true scientific spirit, quotes:

Go on in your sectarian course, ultra devotees of Hahnemann, if you will; be loyal to the teachings of your master, if you must; but shut not your eyes to the fact that science has rendered obsolete many tenets of his system, and removed the last vestige of an excuse for maintaining an organization of physicians under an exclusive title, distinct and separate from the medical profession at large. That ultra school of medicine has fulfilled the complete measure of its usefulness as a separate organization. Loyalty to truth and progress now demands that it shall drop its narrow sectarian name and no longer seek to keep its members in leading-strings. In the nature of things there can be but one system of medicine recognized by science. Either homœopathy must absorb the old school or be absorbed by it.—*Maryland Medical Journal*.

We transcribe to endorse this sentiment. There can in the nature of things eventually be but one broad catholic practice of medicine, embracing every known remedial resource which experience proves and has proved to be of real value.

It matters not how men start out in the practice of the medical art, whether upon broad or narrow lines, as they grow older in observation and experience they try to practice their art the best they can, if they be honestly and earnestly devoted to the welfare of their patients. The sects diverge much from regular medicine, but the best and wisest of the sectarian practitioners grow into liberal and broad-minded physicians as they grow older in practice. A wide observation and a large clinical experience ripens judgment and must obliterate all narrow sectarian boundaries that circumscribe the utility of the true physician at the bed-side, even though all may not be willing to break down the barriers of environment. True science, in its ever onward march, may be trusted to break down and cast away all barriers that lie in the pathway of truth and real progress, and somehow or other, we know that sects in medicine must die, and only truth survive as a part of medical science. New sects may be distinctive, but as they grow older, and broader, whatever of truth they have to

bestow upon medical science will, if freely given, be freely received and absorbed by it, and finally come to be but a part of that great salvage corps whose mission is the highest physical and not the lowest moral welfare of man.

A Physician's Personal Experience with Cocaine.—Dr. Wm. A. Hammond has detailed before the late meeting of the New York Neurological Society the following exceptional personal experience with cocaine:

"I have taken as many as eighteen grains at a dose by hypodermic injection, dividing it up over some fifteen minutes. I began my experience on myself with one grain at night. I was rather discouraged by the first dose. Every puncture I have made has left an indurated spot, and I at one time feared that erysipelas might follow. This may have been due to the condition of my system or the kind of cocaine I used. The result was pleasant; I felt happy—happier than before on that day. But I did not sleep until 4 A. M., and I had a severe headache. The exhilaration was slight—equal to that given by two or three glasses of champagne.

"The next night I took two grains with the same result and the additional one of an inordinate disposition to write. I wrote eight or ten pages of foolscap and thought it was unusually good, the best I had ever written in fact. So I read it over the next morning. I found each sentence complete, but the ideas were incoherent. The third night I took three grains. My energy then turned to talking. I made speeches to myself; still I could restrain myself. I had a splitting headache. I stopped for four or five days and then injected six grains, three grains into each arm. I was upset. I did not lose my relations to events, but I could not sleep. After three nights I injected eight grains with the same result. The next night I put in eighteen grains in six injections, two in the legs, two in the thighs and two in the chest. I am not sure that I was conscious of what I did after that. I was intensely exhilarated. I got to bed somehow. When I rose at 7 A. M., things were generally mixed. I had not arranged my papers, etc., as usual. I presume, from appearances, I had had a pretty lively time all by myself. I had a headache, my heart beat so that I could feel it and hear it when I raised my arm. But there were none

of the horrible effects attributed to cocaine, no disposition toward violence. I acquired no habit. I left off easily."

"Dr. Mattison, of Brooklyn, controverted Dr. Hammond's views as to the cocaine habit, and said that there was such a habit, one more destructive than the morphine habit; he himself had had five physicians and two druggists under his care, who were victims of the habit; one of them had become demented. His own experience bore out that of Dr. Hammond, that the use of cocaine produced insomnia, volubility, headache, unrest and delusions, though none of them were homicidal. The effect was fleeting."

This is not a very reliable way to get at the effects of cocaine.

The doctor is not sure he was conscious of what he did, after the eighteen-grain injection, and we are not certain of it either. We should rather have heard the testimony of an observer not under cocaine influence, as to what he did when he was having that "lively" time all to himself.

He confesses to have written, after a two-grain dose, eight or ten pages of foolscap, of which his recollection is that it was unusually good at the time, but which he found to be incoherent next morning.

On the morning after three grains, he had a remembrance of volubility and a splitting headache.

On a subsequent night six grains upset him so that he could not sleep, but thinks he did not lose his relations to events. Here again we should have preferred the testimony of a third person. After three nights more an injection of eight grains had about the same effect. But eighteen grains the next night fixed him. He "got to bed somehow," but "things were pretty generally mixed" when he arose at 7 A. M. the next day.

He says nothing about the sweating, dyspnea and syncope, observed in others under the influence of large doses.

To fully convince the skeptical, like ourselves, that the effects observed by Dr. H. are the sole untoward results of cocaine-taking the doctor should give a seance before the Neurological Society or some other number of medical men, and let others attest to things he was probably not in a condition to accurately note or remember. He may be a psychological and neurological exception, for such doses of cocaine certainly act more damagingly on others than this record of Dr. H.'s personal experience.

As for the cocaine habit we know it to be a fact, though most, possibly *all*, cocaine takers may have previously used opium, and doubtless fall back on opium often when the cocaine symptoms become too alarming, each drug being physiologically somewhat antidotal to the other.

If Dr. Hammond should have the temerity to pursue his personal experiments further he may learn, by sad experience, what the cocaine habit really is. We hope not, but shall be thankful for any further sacrificial risk he may take upon the altar of personal physiologico-therapeutic experiment. We should like to see a record of his experience under eighteen grains of cocaine, noted by other medical men, who might be in a condition to record some things Dr. Hammond may not have noted.

This record of personal experience is not in accordance with the observations of others. Erlenmeyer, for instance, having made the cocaine habit a subject of study, has recorded in *Die Deutsche Medicinal Zeitung*, No. 46 of the present year, a different experience, and while he concludes, with most observers, that it would be "unjust to lay too large a share of the troubles noted to cocaine alone, because of so many of the cocaine habitues having been previously addicted to morphine," still he found "enough evidence to prove its evil consequences, and thinks it should only be used as a powerful medicament, with circumspection."

He found its characteristic effects to be a vasomotor paralysis, accelerated pulse, profuse sweats, dyspnea and syncope, failure of general nutrition, the eyes sunken, and the skin of a cadaveric hue. "At a more advanced stage psychic troubles supervene, sometimes requiring personal restraint."

Our patients, as we have observed them, bear a different testimony in regard to cocaine from that of Hammond's personal experience.

Defective State Laws Respecting Medical Testimony on the Subject of Insanity in the Courts.

—The State laws prevailing in New York, Missouri, and some other States, respecting the sanctity of facts obtained as necessary to prescribe, and debarring physicians under any circumstances to divulge them, is a two-edged sword, and cuts against as well as for justice in many instances, and make it quite unsafe for physicians to pronounce upon a case of undoubted mental aberration, even

imperatively demanding treatment, when the derangement is not plain to the public.

The worst forms and most hopeless, if treatment in their inception is delayed, are the most obscure to the ordinary observer.

Insane people have a right to have their malady promptly discovered and treated, even though they do not have the good fortune to be stricken with mania in violent form, of melancholia with suicidal action, or dementia. But who will pronounce a case of insanity such, and send it away for treatment, if the facts elicited as necessary to prescribe are ruled out by courts, and the physicians who treat such cases in asylums cannot testify to their condition?

This is the only way some cases of insanity can be found out. If a medical man cannot in court give his reasons for deciding a person to be insane, he will likely, if he is prudent, withhold his certificate, except in such cases as are plain to every passer-by—notorious; and in such cases a medical certificate would not be needed. It is in the milder displays, and incubative stages of mental disease, that medical skill can be most useful, and it is a great wrong to the insane to deprive them of such benefit. Medical men, of known familiarity with insanity, and of established character, might as well be trusted in these matters as judges of courts.

It is no detriment, but rather a benefit, to one afflicted with insanity, in ever so mild a form, to have that fact known, and the patient's malady properly and timely treated, that he may have restored to him the most priceless of all of his possessions—his natural mind unperverted by disease.

The modern hospital for the insane, especially the many private and corporate homes, conducted as they are with the utmost humanity and skill, are not bastiles or prisons, furnishing only restraint behind the bars. They are places to be sought rather than shunned by the mentally afflicted, or their friends for them.

If any physician, thoroughly familiar with the modern method of treating insanity, and caring for its victims, in time was to become insane, he would ask to be protected from that wrongly-directed humanity that would keep everyone but the dangerous lunatic from the timely treatment and control his malady might require, and would debar by law the fact of his insanity from being told,

even in his interest, by those best qualified by intimate study of the disease; and such as are best qualified are those mental alienist physicians to whom society and the law entrust these afflicted ones. Insanity should not be placed on the same plane as a loathsome disease, before the courts, and the secrecy of the confessional, as though it were a moral crime to be insane; should not, in court, seal the lips of the physicians who treat these unfortunates. Laws should not be framed to harm the insane or rob them of the right to have their malady properly understood and defined, from the most competent source.

If such laws are maintained long in force, their evil effects will become plainly manifest in many criminal and civil trials. Such laws have already done harm to those whom they were intended to protect.

A Story of Family Taint Told in a Criminal Court.—There was a painful scene in the Baltimore Criminal Court, May 26th, when William E. Stone was acquitted of the murder of his wife. His daughter Clara, a fine-looking girl, but pale as death from excitement, arose in the witness-box and, pointing at the weeping man, said:

"Yes, you ought to cry! You ought to cry! You ought to have been hung!"

Ella, another daughter, rushed to the released prisoner, and throwing her arms around his neck, kissed him.

Epilepsy runs in the Stone family, and it was shown during the trial that the prisoner had always been a kind husband and tender father. He suffered from epilepsy. One day he came home from work, shot and killed his wife, then tried to kill himself, and after falling bleeding to the floor, dragged himself over to where his dead wife lay, and threw his arms lovingly about her. He called his little three-year-old boy to come kiss him, and told the police that he had committed the crime for his children's sake. Some of the neighbors said it was jealousy, but members of the family declared he was crazy.

It was brought out in evidence that Stone had attempted to kill himself three times. He had on several occasions had differences with his wife. About four years ago she left him at Selina, Pa., and they were separated for some time.

Mrs. Eliza Jane McGuire, of St. Louis, an elder sister of Stone, was the important witness for the defense.

She cried bitterly as she told her story, and had the jury and the crowd of spectators in tears. She said her husband was a blind basket-maker in St. Louis, and she stripped the house of everything that both she and her husband possessed to raise money to come here to try and save her poor brother. Her father she said, was an epileptic. She had seen him have several fits. Her father had once tried to cut his throat with a razor. He was very eccentric, and imagined he was called to preach the gospel. One time he went out in his stable, placed a rope around his neck and said to them that he was going to heaven, but they cut him down. In describing the condition of her mother's family she said they were all more or less crazy. One of her sisters was an idiot.

Mrs. King, another sister of the prisoner, was seized with an epileptic fit as she was about to give her testimony.

Charles Stone, a brother of the prisoner, who had spent two years in an insane asylum, testified to the mental condition of the prisoner, and exhibited on the witness stand pitiable evidences of his own affliction.

Mrs. McGuire said that she also was subject to epileptic fits. She had one in court yesterday. Some years ago, while living in Baltimore, she tried to throw her baby out of the third-story window.

The whole family of epileptics testified in their brother's behalf, and their disconnected talk and occasional spasms in court, made the trial a remarkable one.

This case shows the need of legally interdicting the marriage of epileptics, and exhibits the different views held of crime caused by disease, even by members of the same family. While one would extenuate, the other sets down all to malice.

Teaching the Nature of Alcohol.—On this subject the *Journal of Inebriety* thus editorially discusses the question:

The effort to prevent inebriety by teaching in the common schools the nature and character of alcohol and the danger of its use, is a psychological advance of the subject worthy of note. Many States have passed laws requiring this subject to be taught in the schools, and many text-books and an army of lecturers have appeared discussing the scientific facts concerning alcohol. These lecturers are clergymen, teachers, and irregulars in the medical profession, mostly non-experts,

and most incompetent teachers of facts, who, from a small basis of truth, draw the most startling conclusions—conclusions that would require a century of study by the most competent men to determine. From the lecture-stand and before a general audience these exaggerations and fictions pass unchallenged. But when they are presented in text-books for purposes of teaching, the effect is bad. No one can doubt the importance of the subject, and the pressing need of information; but no argument or inaccurate statement can benefit or help on the cause. The zeal of earnest, misinformed men and women which betrays them into statements regarding alcohol that are untrue, is an injury, and in time will react and weaken, if not destroy all their efforts. No matter what is believed to-day by the masses, the truth will be recognized and accepted by-and-by.

The text-books to teach alcohol in the schools are already numerous and voluminous. When we consider that all the known facts concerning the nature and action of alcohol can be placed on a single printed page, the dozen or more text-books on the market, presenting this subject in from one to three hundred pages each, must appeal strongly to the reader's credulity. With one or two exceptions the authors of these works, and their peculiar emphatic style of writing, go far to deepen the suspicion of error and non-expert teaching. The conclusion is inevitable, that all present teaching of alcohol and its dangers must be empirical from such works, and the real results will not come from the impressions produced on the minds of the children, but from the general agitation of the subject, and the growth of a broader conception in the minds of the community. Alcohol, like electricity, will by-and-by become known, and its place in nature determined; then it can be harnessed safely into the service of progress and civilization. It is the profound ignorance of its nature and character that makes it so dangerous and fatal. The effort to teach the danger from the use of alcohol is a movement in the right direction. But unfortunately these efforts, like the movements of the first settlers or squatters of a new territory, will be transient. Occupying the land here and there, they will give way after a time to the real settlers, who will make permanent improvements and develop the country into an organized state. The real responsibility rests on the medical profession, not on moralists and clergymen. It is a scientific subject, that requires a medical training to study and determine. The public will justly turn to medical men for instruction on this subject. It is too early to teach what alcohol is, because it is unknown; but if this empirical teaching will rouse up inquiry to find out the facts, then good will come from it. If the money spent in this direction had been used to equip laboratories and employ competent men to discover the real truths, the cause of temperance would make great strides. What is wanted most are facts concerning alcohol proclaimed and maintained through all good and evil report.

A New Anatomy Act.—The movement to secure, at the next meeting of the Missouri Legislature, a new

law regulating the supply of anatomical material, is receiving much encouragement. We predict that by the time that body convenes there will be a general enthusiasm in its favor. However, there is necessity for much work: in the first place, to interest in the measure those who will have the privilege of voting for or against it; and in the next place, to overcome prejudices in the minds of some of them against liberal legislation in this direction.

This will have to be done by the members of the medical profession throughout the State. We believe that every enlightened physician will recognize the fact that it is his duty, from a scientific stand-point, to assist in any practical effort to secure a better law than we now have, one that will provide for an abundance of material. This the present law does not do, and it has been practically proved, especially in the last two years, that it cannot be made to do so in its present shape. Our neighbor State, Illinois, has a law, a new one, that is accomplishing this point. Here there comes in another duty, that of citizenship. It is not necessary to state the reasons why we should not be behind a rival so near at hand in this particular. It is not only a question of her medical colleges being better supplied with bodies for dissection, and hence more popular, but it is one that affects the standing and progress of the profession of medicine generally in the State, and should appeal to the pride of every physician in it. We feel assured that when the draft of the proposed statute reaches the Legislature it will be in a shape to make a good law. Some of our readers are in a position to secure it votes. We hope they will do so.

The Legal Suppression of Quackery.—We are gratified to find the thinking and observing outside of the ranks of the medical profession becoming interested in this subject, and especially pleased are we to find that able exponent of advanced research and thought, *Science*, taking an interest in this important subject. We accordingly extract from its October 22d issue the following pertinent comments:

That the laws which now exist for the protection of the ignorant, both poor and rich, against quacks and charlatans, are totally inadequate to that end, must be painfully evident to everyone who keeps himself at all informed on the general news of the day. It is not long ago that one death was caused by the application of kerosene, and another by the fluid extract of the St. Ignatius bean. Within the pres-

ent year a strong, robust farmer in middle life, and apparently having a long life before him of usefulness and enjoyment, was, within ten hours after the application to the lip of strong potash and chloride of zinc by one of these harpies, dead from the absorption of this corrosive poison. The first two cases mentioned were brought to a successful issue in the courts, the judge holding, that if a person publicly practicing as a physician, on being called to a sick person, prescribes with foolhardy presumption a course of treatment which causes death, proper medical assistance being at the time procurable, he may be found guilty of manslaughter, although he acted with the patient's consent, and with no ill intent. There is no more important legislation than the regulation of the practice of medicine; and it is to be hoped that the medico-legal societies, or some other organizations, will prepare laws which will drive from the country the thousands of impostors who are to-day living and growing rich upon the credulity and ignorance of the people.

General Officers of the International Medical Congress.—The Executive Committee of the International Congress have finally elected the following officers for the Washington Congress of 1887:

President.—N. S. Davis, of Chicago.

Vice-President.—W. O. Baldwin, of Montgomery, Ala.; Wm. Brodie, of Detroit; W. W. Dawson, of Cincinnati; E. M. Moore, of Rochester, N. Y.; J. A. Grant, Ottawa, Canada; T. G. Richardson, of New Orleans; L. A. Sayre, of New York; J. M. Tonor, of Washington; the President of the American Medical Association; the Surgeon-General United States Army; Surgeon-General United States Navy; Supervising Surgeon-General Marine Hospital Service.

Secretary-General.—J. B. S. Hamilton, U. S. Marine Hospital Service.

Treasurer.—E. S. F. Arnold, of New York.

Chairman Finance Committee.—Richard J. Dangler, Philadelphia.

Chairmen of Sections were also elected, but we have not room for their names.

We must confess that as a whole, these names do not appear to be as representative as we would wish. We, however, hope that now all past differences will be forgotten, and that all will work loyally to make the Congress a great success.

Dr. Benjamin Rush's Early Humanity Toward the Insane.—Dr. Thomas G. Morton, in an address last

December before the resident physicians of the Pennsylvania Hospital, from the old records found in the archives of this time-honored institution, thus places the pioneer in American psychiatry on the side of humanity to the insane, along with Pinel, Chiarugi and Tuke.

In November, 1789, Dr. Rush wrote to the managers of the hospital asking that more wholesome apartments might be provided for them, and saying, among other things, as follows:

Under a conviction that the patients affected by madness should be the first object of the care of a physician of the Pennsylvania Hospital, I have attempted to relieve them, but I am sorry to add that my attempt, which at first promised some success, was soon afterwards rendered abortive by the cells of the hospital.

These apartments are damp in summer and too warm (?) in winter. They are, moreover, so constructed as not to admit readily of a change of air; hence the smell of them is both offensive and unwholesome.

Few patients have ever been confined in these cells who have not been affected by a cold in two or three weeks after their confinement, and several have died of consumption in consequence of this cold.

These facts being clearly established, I can see the appropriating of the cells any longer for the reception of mad people, will be dishonorable both to the science and humanity of the city of Philadelphia.

Another Decision Important to Physicians, concerning Pay for Expert Testimony, was recently made in a Kansas City court, in a suit for damage, brought by E. Harris, agent of a Stock-Yard Company. Dr. Halley, editor of the *Kansas City Medical Journal*, who attended the plaintiff after the alleged injury, refused to attend court in answer to a subpoena. An attachment was issued, and he was brought into court and sworn, but refused to testify in the case until a reasonable compensation was paid him. Judge Slover took the matter under advisement, before committing the doctor to jail for contempt; and after looking up the decisions carefully, he gave the opinion that a physician's time was valuable to him, having been made so by a long course of study and at considerable expense, therefore he could not be deprived of the time which was needed in his business without a fee commensurate with the sacrifice he was compelled to make during the time he spent in the case under trial.

Corning's Method of Local Anæsthesia.—Dr. J. Leonard Corning, of New York, produces local

anæsthesia by perforating the skin with the needles of a Baunscheidt instrument, and applying over the surface a sponge electrode saturated with a $2\frac{1}{2}$ per cent. cocaine solution from three to four minutes, and of sufficient intensity to cause a slight sensation of heat. His method is made more efficient by the pressure of Esmarch's bloodless bandage immediately before the needle punctures are made.

Substitution by Druggists.—Our attention has been called to the fact of substitution by druggists of extemporized manufacture of bromidia and other proprietary articles. Druggists have no option in this matter unless the physician expressly grants it. Substitution is not a druggist's prerogative, and a druggist who will do it ought not to be countenanced by the profession, and should be prosecuted.

The Chlorodyne Habit.—The *British Med. Journal* records three cases of this habit. The body of a lady, aged sixty-two, was examined, and it was found to be greatly emaciated, not weighing more than fifty pounds, owing to the continued use of chlorodyne, which it was shown, she and two sisters had been taking for years.

The Fame of the Alienist and Neurologist.—

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CORRESPONDENCE.

COCAINE ADDICTION.—*Mr. Editor.*

If any reader of your JOURNAL has met with a case of cocaine addiction and will send me the fullest details at his command, I'll thank him for the courtesy, reimburse him for any expense incurred, and give him full credit in a coming paper. J. B. MATTISON, M. D.

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however, society did not encourage such habits it would not have these wayward and feeble members to deal with; and, having encouraged their development, it should first consider how they may be reformed and restored to usefulness. It is fortunate indeed that the idea of a reformation of all such delinquents and offenders against society is fast displacing the old and savage notion of punishment. Punishment in its earliest manifestation is torture which the savage inflicts on an offender or enemy. Reformation is one of the refinements of civilization, which in place of destroying by torture attempts to save and recall to usefulness those who have sinned and fallen.

Dr. Wright has written an original and instructive book, and he can be congratulated upon having made a permanent contribution to the subject of Inebriism.

J. H. M.

LINDSAY & BLAKISTON'S PHYSICIAN'S VISITING LIST FOR 1887.

This book is on our review table. It is complete, compact and simple. A useful pocket companion for case records and reference. P. Blakiston, Son & Co., 1012 Walnut Street, Philadelphia, are the publishers.

Operations on the Drum-Head for Impaired Hearing; with fourteen cases. By Seth S. Bishop, M. D., of Chicago. Attending Surgeon to the Illinois Charitable Eye and Ear Infirmary, and to the South Side Free Dispensary. Read in the Section on Ophthalmology, Otology and Laryngology, at Thirty-seventh Annual Meeting of the American Medical Association.

Electrolysis in Gynecology, with a Report of Three Cases of Fibroid, Tumor Successfully Treated by the Method. By Franklin H. Martin, M. D., of Chicago. Professor of Gynecology in Chicago Polyclinic, Fellow of Chicago Gynecological Society, Clinical Lecturer in Gynecological Department of South Side Dispensary, Member of Chicago Medical Society, etc.

The Bromides; their Physiological Action, Therapeutical and Toxic Effects, Alone and in Combination. By Wm. B. Hazard, M. D., Professor of Principles and Practice of Medicine and of Clinical Medicine, St. Louis College of Physicians and Surgeons: formerly Superintendent and Physician to the St. Louis Insane Asylum, etc.

Johns Hopkins University, Baltimore. Studies from the Biological Laboratory. Editor: H. Newell Martin, M. A., D. Sc., M. D., F. R. S., Associate Editor: W. K. Brooks, Ph. D. Vol. III., No. 8. Published by N. Murray, Johns Hopkins University, October, 1886. Price of this Number \$1.00 Subscription, per Volume, \$5.00.

The Mechanism of Indirect Fractures of the Skull. By Charles W. Dulles, M. D., Fellow of the College of Physicians and of the Academy of Surgery, of Philadelphia; Surgeon to the Out-Patient Department of the Hospital of the University of Pennsylvania and of the Presbyterian Hospital in Philadelphia.

The Surgery of the Pancreas, as based upon Experiments and Clinical Researches. By N. Senn, M. D., of Milwaukee, Wis.; Attending Surgeon to the Milwaukee Hospital; Professor of the Principles and Practice of Surgery and of Clinical Surgery in the College of Physicians and Surgeons, Chicago, Illinois.

Le Degenerazioni Sperimentali Nel Cervello, e nel Midollo Spinale a Contributo Della Dottrina Delle Localizzazioni Cerebrali per L. Bianchi Prof. Pareggiato di Neuropatologia, e G. D'Abundo, Assistente alla Clinica Psichiatrica di Napoli. Estratto dal Giornale La Psichiatria.

Report of Two Successful Cases of Trephining for Traumatic Epilepsy. By Carlos F. Macdonald, M. D., Medical Superintendent N. Y. State Asylum for Insane Criminals. Read before the Third District Branch of the N. Y. State Med. Association, at Binghampton, N. Y., June 17, 1886.

Nuove Ricerche Nell' Ipnatismo pel Dott. Guiseppe D'Abundo Assistente alla Clinica Psichiatrica nell'Università. Comunicazione fatta innanzi all' Associazione dei Naturalisti e Medici nella seduta dell' 8 Luglio, 1886. Estratto dal Giornale La Psichiatria. Napoli, 1886.

Some Reflections on Professional Ethics, Medical Legislation, and Jury Trials of the Insane. By D. R. Wallace, M. D., LL. D., Terrell, Texas. Read before the Texas State Medical Association, at its meeting at Dallas, Texas, April 27, 28, 29 and 30, 1886.

Le Lesioni della Vescica e Della Prostata nella Paralisi Generale Progressiva Studio Clinico ed Anatomo-Patologico pel Dott. Guiseppe D'Abundo Assistente alla Clinica Psichiatrica nell'Università. Estratto dal Giornale La Psichiatria. Napoli, 1886.

The Exploration, Excavation and Illumination of the Interior of Bones in Any Part of the Body. By Milton Josiah Roberts, M. D. Addressed to the Clinical Society of the New York Post-Graduate Medical School and Hospital, Feb. 21, 1885.

Cocaine in Hay Fever; a Lecture delivered at the Chicago Medical College. By Seth S. Bishop, M. D., Surgeon to the South Side Free Dispensary, and to the Illinois Charitable Eye and Ear Infirmary; member of the American Medical Association.

Report of a Case of Insanity following Gunshot Injury to the Head; Cerebral Cyst; Aspiration; Recovery. By Carlos F. Macdonald, M. D., Medical Superintendent, State Asylum for Insane Criminals, Auburn, New York.

Intubation of the Larynx for Diphtheritic Croup. By E. Fletcher Ingals, A. M., M. D., Professor of Laryngology, Rush Medical College; Professor of Diseases of the Throat and Chest, Woman's Medical College, Chicago.

Brain-Disease of Traumatic Origin: Cases. By Wm. Julius Mickle, M. D., M. R. C. P., Grove Hall Asylum, London. Read at the Annual Meeting of the British Medical Association, Cardiff.

A Prior Discovery of the Method of Perinæorrhaphy. By John W. Streeter, M. D., Professor of the Medical and Surgical Diseases of Women in the Homœopathic Medical College of Chicago.

Massage in Nervous Diseases. By George W. Jacoby, M. D., Physician to the Class of Nervous Diseases of the German Dispensary of the City of New York.

A Contribution to the Study of Heredity. By F. Norton Manning, M. D., Inspector-General of the Insane in New South Wales.

Some Abnormal Forms of Breathing. By W. Julius Mickle, M. D., M. R. C. P., Grove Hall Asylum, London.

Feeding by Rectum. By W. Julius Mickle, M. D., M. R. C. P., Lond., Grove Hall Asylum, London.

Proposed Tabular Form for Record of Autopsies, Boston Lunatic Hospital, May 10, 1886.

"Quam ego quidem video motus morborum fere omnes a motibus in systemate nervorum ita pendent, ut morbi fere omnes quodammodo Nervosi dici queant."—Cullen's Nosology: Book II
P. 181—Edinburgh Ed. 1780.

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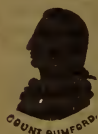
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ORIGINAL CONTRIBUTIONS.

ON THE RELATION BETWEEN LAW AND MEDICINE, WITH ESPECIAL REFERENCE TO THE MEDICAL JURISPRUDENCE OF INSANITY. By Edward C. Maun, M. D., Brooklyn, N. Y.....	547
CERTAIN HEREDITARY AND PSYCHICAL PHENOMENA IN INEBRIETY. By T. D. Crothers, M. D., Hartford, Conn.....	566
SCHOOL TRAINING OF THE INSANE. By Jas. G. Kiernan, M. D., Chicago, Ills.	581
TREATISE ON THE WORKS OF THE PSEUDO-METAPHYSICISTS, OR FALSE SUPERNATURAL PHILOSOPHERS. By Henry Howard, M. D., (M. R. C. S., L., Englan ^d), Montreal, Canada.....	592
RAYNAUD'S DISEASE AND INSANITY. By Jas. G. Kiernan, M. D., Chicago, Ills	618

PROCEEDINGS.

Proceedings of the Fortieth Annual Meeting of the Association of Medical Superintendents of American Institutions for the Insane.....	620
---	-----

SELECTIONS.

PSYCHIATRY..... The Mental Alienation of Blue-Beard —Hughlings Jackson's View of the Nature of Insanity.—Cucinomania.	683
NEUROPHYSIOLOGY..... Note on an Alteration of the Brain, Characterized by Separation of the Gray and White Matter of the Convolutions. —Hitzig on the Motor Centers. —Exner and Vareth on Motor Areas in the Cortex. —The Cause of the Knee Phenomenon —Girard on the Thermogenic Centers —Gudden on Cerebral Localization. —Thermal Brain Centers. —On the Central Connection of the Auditory Nerve. —The Ano-Vesical Centers.	686
NEUROPATHOLOGY	694
A New Group of Symptoms. —Relation of the Tendon Phenomenon to the Reaction of Degeneration.	
NEUROTHERAPY	696
Urethan in Mental and Nervous Diseases. —Hyocyanine in Chorea. —Helenin in Chorea.	
SEMIOLOGY.....	697
Reflex Epilepsy Caused by Larvæ of Insects. —Mental Disturbances Consecutive to Cataract Operations.	

EDITORIAL.

The Great Increase of Insanity. —“Index Catalogue of the Surgeon-General's Office of the United States Army.” —The Doctor of the Future. —A Physician's Personal Experience with Cocaine. —Defective State Laws Respecting Medical Testimony on the Subject of Insanity in the Courts. —A Story of Family Taint Told in a Criminal Court. —Teaching the Nature of Alcohol —A New Anatomy Act. —The Legal Suppression of Quackery. —General Officers of the International Medical Congress. —Dr. Benjamin Rush's Early Humanity Toward the Insane. —Another Decision Important to Physicians, Concerning Pay for Expert Testimony. —Corning's Method of Local Anæsthesia. —Substitution by Druggists. —The Chlorodyne Habit. —The Fame of the ALIENIST AND NEUROLOGIST.	699
Reviews, Book Notices, etc.....	714
General Paralysis of the Insane. —Du Délire Chez les Dégénérés. —Inebriism. —Lindsay & Blakiston's Phys ician's Visiting List for 1887.	

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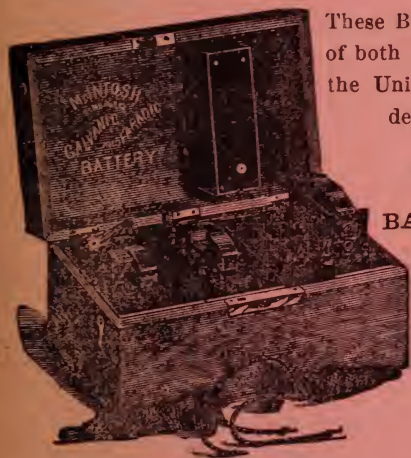
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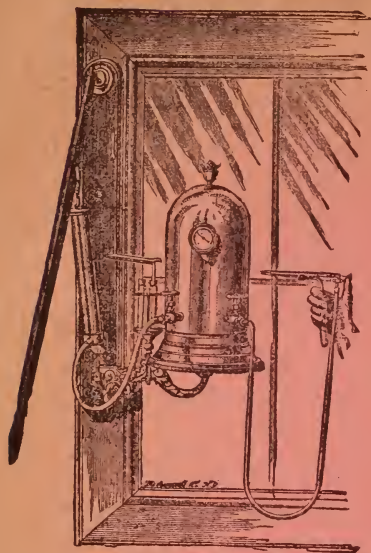
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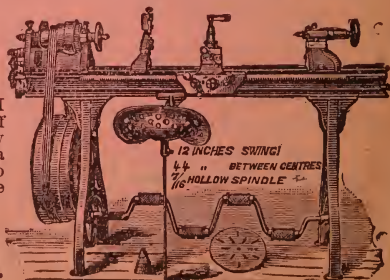
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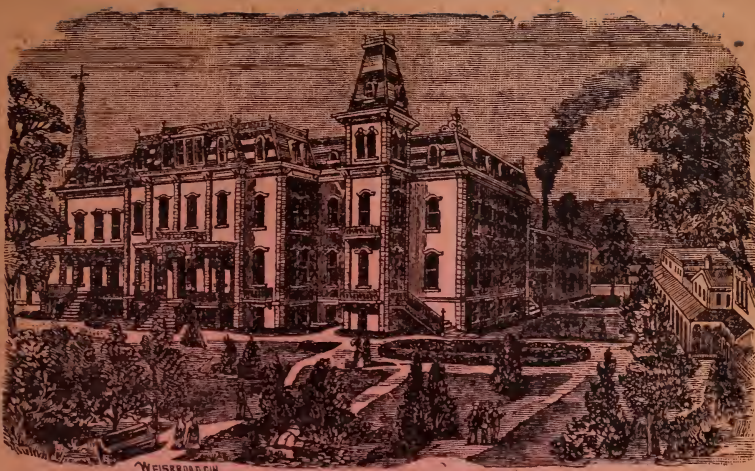
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